

# MARINE REVIEW.

VOL. XI.

CLEVELAND, O., JANUARY 17, 1895

No. 3.

## Average Lake Freight Rates.

In the accompanying tables there is presented average rates of freight on iron ore, soft coal and grain. The averages of daily rates, or rates on wild cargoes, is made up by collecting from several shippers and vessel brokers their lists of charters during the season, from which a general list is prepared, that will include in nearly all cases actual charters for every day of the season. The sum of these daily rates divided by the number of days gives the average quoted. These averages are, then, what may be termed daily averages, and not the figures at which the entire tonnage of either coal or grain was moved.

The bulk of the ore moved from the head of Lake Superior during the past season was covered by freight contracts at 80 cents, but from Marquette and Escanaba only a few season contracts were made early in the spring, and these were at 80 and 60 cents, respectively, so that these rates must be quoted as the contract rates. Some ore from the head of Lake Superior was moved during summer months on contracts as low as 60 cents, and from Marquette on contracts running through the greater part of the season at 70 cents.

Probably the most interesting average rate is that on all ore, contract and wild, moved from the head of Lake Superior—Ashland, Two Harbors and Duluth. From the sales agents engaged in moving ore from these ports, the average rate of each on contract and wild shipments, together with the amounts moved by each, were secured, and an average of these averages shows that on all ore shipped from the head of the lakes the average rate was 78.9 cents. Last year it was 94.1 cents. Following are the tables:

AVERAGE FREIGHT RATES, IRON ORE, PORTS NAMED TO OHIO PORTS.

| Year. | ESCANABA.           |                | MARQUETTE.          |                | ASHLAND AND OTHER PORTS AT THE HEAD OF LAKE SUPERIOR. |                |
|-------|---------------------|----------------|---------------------|----------------|---|----------------|
|       | Wild or daily rate. | Contract rate. | Wild or daily rate. | Contract rate. | Wild or daily rate.                                   | Contract rate. |
| 1875  | \$1 13              | \$1 40         | \$1 50              | \$1 75         | .....   | .....          |
| 1876  | 86                  | 1 20           | 1 35                | 1 50           | .....   | .....          |
| 1877  | 98                  | 1 00           | 1 41                | 1 40           | .....   | .....          |
| 1878  | 81                  | 90             | 1 22                | 1 30           | .....   | .....          |
| 1879  | 1 25                | 90             | 1 83                | 1 40           | .....   | .....          |
| 1880  | 1 70                | 1 85           | 2 26                | 2 75           | .....   | .....          |
| 1881  | 1 36                | 1 75           | 2 05                | 2 45           | .....   | .....          |
| 1882  | 1 04                | 1 40           | 1 26                | 1 75           | .....   | .....          |
| 1883  | 1 22                | 1 00           | 1 40                | 1 20           | .....   | .....          |
| 1884  | 87                  | 1 10           | 1 08                | 1 35           | .....   | .....          |
| 1885  | 78                  | 90             | 98                  | 1 05           | \$1 25  | \$1 15         |
| 1886  | 1 28                | 1 05           | 1 51                | 1 20           | 1 78  | 1 20           |
| 1887  | 1 59                | 1 40           | 1 87                | 1 63           | 2 23  | 2 00           |
| 1888  | 1 05                | 90             | 1 30                | 1 15           | 1 43  | 1 25           |
| 1889  | 1 01                | 1 00           | 1 19                | 1 10           | 1 34  | 1 25           |
| 1890  | 89                  | 1 10           | 1 07                | 1 25           | 1 17  | 1 35           |
| 1891  | 84                  | 65             | 1 02                | 90             | 1 11  | 1 00           |
| 1892  | 74                  | 1 00           | 98                  | 1 15           | 1 15  | 1 25           |
| 1893  | 56                  | 85             | 71                  | 1 00           | 77  | 1 00           |
| 1894  | 46                  | 60             | 60                  | 80             | 78  | 80             |

Charge to vessel for handling ore, 16 cents a ton.

Average ore rates for the entire period of twenty years: Escanaba, contract \$1.10, wild \$1.02; Marquette, contract \$1.40, wild \$1.33. Average for past ten years: Escanaba contract 94½ cents, wild 92 cents; Marquette, contract \$1.12, wild \$1.12; Ashland and other ports at the head of Lake Superior, contract, \$1.22½, wild \$1.30. The average rate on all ore, contract and wild, moved from ports at the head of Lake Superior during 1894 was 78.9 cents.

AVERAGE DAILY WILD RATES, SOFT COAL, OHIO PORTS TO PORTS NAMED.

| Year. | Milwaukee. | Escanaba. | Duluth. | Green Bay. | Manitowoc. |
|-------|------------|-----------|---------|------------|------------|
| 1885  | \$0 63     | \$0 51    | \$0 49  | .....      | .....      |
| 1886  | 83         | 60        | 78      | .....      | .....      |
| 1887  | 1 06       | 72        | 89      | .....      | .....      |
| 1888  | 84         | 61        | 66      | .....      | .....      |
| 1889  | 54         | 49        | 52      | .....      | .....      |
| 1890  | 64         | 45        | 49      | .....      | .....      |
| 1891  | 61         | 52        | 49      | .....      | .....      |
| 1892  | 58         | 43        | 43      | \$0 55     | \$0 49     |
| 1893  | 48         | 40        | 38      | 50         | 41         |
| 1894  | 48½        | 39        | 37½     | 49½        | 48         |

Average ten years, 67 51 55

Chicago rate practically same as Milwaukee.

Coal of all kinds shipped in net tons and handled without charge to vessel.

AVERAGE OF RULING LAKE FREIGHT RATES, HARD COAL, BUFFALO TO PORTS NAMED.

| Year. | Chicago. | Duluth. | Toledo. |
|-------|----------|---------|---------|
| 1885  | \$ 0 71  | \$ 0 52 | .....   |
| 1886  | 87       | 62      | .....   |
| 1887  | 1 05     | 70      | \$ 0 35 |
| 1888  | 86       | 65      | 41      |
| 1889  | 52       | 41      | 27      |
| 1890  | 62       | 43      | 33      |
| 1891  | 56       | 29      | 25      |
| 1892  | 59       | 43      | 27      |
| 1893  | 49       | 29      | 28      |
| 1894  | 46       | 25      | 25      |

Average for ten years..... 67 46 30

Rate to Milwaukee usually same as Chicago, and Detroit rate about the same as Toledo rate.

AVERAGE DAILY RATES OF FREIGHT, GRAIN, CHICAGO TO BUFFALO.

| Year. | Wheat.     | Year.                    | Wheat.     |
|-------|------------|--------------------------|------------|
| 1878  | 3.1 cents. | 1887                     | 4.1 cents. |
| 1879  | 4.7 "      | 1888                     | 2.7 "      |
| 1880  | 5.7 "      | 1889                     | 2.5 "      |
| 1881  | 3.2 "      | 1890                     | 1.9 "      |
| 1882  | 2.5 "      | 1891                     | 2.5 "      |
| 1883  | 3.5 "      | 1892                     | 2.2 "      |
| 1884  | 2.1 "      | 1893                     | 1.8 "      |
| 1885  | 2. "       | 1894                     | 1.3 "      |
| 1886  | 3.6 "      | Aver. seventeen years... | 2.9 cents. |

Handling charge to vessels on grain, \$3.50 to \$4.50 per 1,000 bushels.

## Accepted as Practically an Official Report.

When the REVIEW printed last week, within twenty-four hours after adjournment of the third annual meeting of the Lake Carriers' Association in Detroit, a complete report of the proceedings of the meeting, requiring eight pages of close print, it was expected that the effort to present these proceedings in an accurate way and within the shortest time possible after the meeting, would be appreciated, but hardly in the manner indicated by the following letter:

LAKE CARRIERS' ASSOCIATION,  
OFFICE OF THE SECRETARY,  
BUFFALO, N. Y., Jan. 12, 1895,

The MARINE REVIEW, Cleveland, Gentlemen.—I have just read the report of the annual meeting of the Lake Carriers' Association in the REVIEW, and I find it so complete and accurate that I have written to Capt. McKay suggesting that a sufficient number of copies of the REVIEW be purchased by the association to send one to each member with a letter calling his attention to the REVIEW's report of the annual meeting, and to the annual report of the board of managers there printed in full. Your report is so good that I think it will render it unnecessary for the association to go to the expense of printing its own report and sending it out to all its members.

C. H. KEEP, Secretary.

In accordance with this request from Secretary Keep, arrangements have been made with Cleveland officers of the association, so that copies of these proceedings, which contain reference to almost every subject that has engaged the attention of the association of late, and which, on this account, will prove especially valuable for reference, will be forwarded in a few days to all members.

Fifteen of the nineteen steamers of the Hamburg-American Packet line are smaller in every way than the Northern Steamship Company's passenger steamer North Land, launched in Cleveland on Saturday last, and so are three of the nine steamers of the Netherlands-American line. The North Land, as well as her sistership, the North West, is larger in every way than the five old but staunch boats which run on the Thingvalla line between Norway and Sweden and New York, and larger also than the five steamers of the Wilson-Hill line between New York and London.

Canadian newspapers contain notices to the effect that the Canada-Michigan Tunnel Company is again to ask the dominion parliament for permission to construct a bridge over the Detroit river, as well as a tunnel under it. Bridge or tunnel schemes originating in Canada are not very dangerous, and anyhow the matter would, of course, require the approval of the United States government. It will be a long time yet before lake vessel owners are again called upon to make a hard fight against a Detroit river bridge. The business of the railways interested in such a project must be greatly increased before it can be brought about.



Supplement to THE MARINE REVIEW, Cleveland, Ohio.

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A—Now Queen Iron Mining Co.      F—Succeeds Buffalo Mining Co.      B—Now Iron Cliffs.      C—1893 and 1894 shipments included in Winthrop.      D—Cherry Valley Ore.      E—Includes Tilden up to 1891.      G—1893 and 1894 shipments given under Penn Iron Mining Co.      H—Formerly Shafer



# SUPPLEMENT MARINE REVIEW, CLEVELAND, O.

## VESSELS IN WINTER QUARTERS AT VARIOUS LAKE PORTS.—JANUARY 24, 1895.

### STEAM VESSELS.

| NAME.                          | PORT.                    |
|--------------------------------|--------------------------|
| Armour, P. D.                  | Milwaukee                |
| Alaska                         | Buffalo                  |
| Arctic                         | "                        |
| Aurora                         | "                        |
| Avon                           | "                        |
| Aztec                          | Tonawanda                |
| Andaste                        | Cleveland                |
| Atlantic                       | "                        |
| Abercorn                       | Marine City, Mich.       |
| Australia                      | Port Huron, Mich.        |
| Arnold, B. W.                  | "                        |
| Adams, James                   | Chicago                  |
| Alva                           | "                        |
| Adams, Tom                     | South Chicago            |
| Argonaut                       | Wm. J. Ogdensburg, N. Y. |
| Akron, Sault Ste. Marie, Mich. | "                        |
| Alta                           | "                        |
| Algonquin                      | Toronto, Ont.            |
| Brazil                         | Milwaukee                |
| Badger State                   | Buffalo                  |
| Bartlett, E. B.                | "                        |
| Boston                         | "                        |
| Bulgaria                       | "                        |
| Benham, C. E.                  | Tonawanda, N. Y.         |
| Benham, C. E.                  | Cleveland                |
| Blanchard, B. W.               | Detroit                  |
| Battironi, Kate                | Marine City, Mich.       |
| Baldwin, S. C.                 | Port Huron, Mich.        |
| Brockway, Geo. E.              | "                        |
| Boydton, C. L.                 | "                        |
| Beard, James                   | Sarnia, Ont.             |
| Benton                         | Bay City, Mich.          |
| Boyer, J. J.                   | Chicago                  |
| Bielman, C. F.                 | "                        |
| Bradley, C. H.                 | "                        |
| Brown, Fayette                 | "                        |
| Buffalo                        | "                        |
| Burt, Wellington R.            | Sandusky, O.             |
| Britannic                      | Ogdensburg, N. Y.        |
| Boyer, Mary H.                 | "                        |
| Bradshaw, Mabel                | Holland, Mich.           |
| Briton                         | Ashtabula, O.            |
| Bessie                         | St. Clair, Mich.         |
| Codorus                        | Milwaukee                |
| Campbell, Gordon               | Buffalo                  |
| Chicago                        | "                        |
| China                          | "                        |
| Chisholm, Henry                | "                        |
| City of Genoa                  | "                        |
| City of Glasgow                | "                        |
| City of Naples                 | "                        |
| City of Rome                   | "                        |
| Clarion                        | "                        |
| Clyde                          | "                        |
| Colgate, J. B.                 | "                        |
| Commodore                      | "                        |
| Craig, John                    | "                        |
| Cumberland                     | "                        |
| Curtis, C. F.                  | "                        |
| Cadillac                       | Cleveland                |
| Cambria                        | "                        |
| Castalia                       | "                        |
| Chisholm, William              | "                        |
| Choctaw                        | "                        |
| Coffinberry, H. D.             | "                        |
| Continental                    | "                        |
| Corona                         | "                        |
| Corsica                        | "                        |
| Cherokee                       | Marine City, Mich.       |
| Colwell, Geo.                  | "                        |
| Columbia                       | Port Huron, Mich.        |
| Chamberlain, Porter            | "                        |
| Cross, Belle P.                | "                        |
| Cleveland                      | "                        |
| Carpenter, O. O.               | "                        |
| Clark, J. F.                   | "                        |
| Colorado                       | "                        |
| Clark, J. C.                   | Sarnia, Ont.             |
| Curtis, S. E.                  | "                        |
| City of Venice                 | Chicago                  |
| Curry, S. S.                   | "                        |
| Cuba                           | "                        |
| Caledonia                      | "                        |
| Canisteo                       | "                        |
| Conemaugh                      | "                        |
| City of London                 | "                        |
| City of Berlin                 | "                        |
| Chemung                        | "                        |
| Centurion                      | "                        |
| City of Duluth                 | "                        |
| City of Traverse               | "                        |
| Cormorant                      | South Chicago            |
| Columbus, Christopher S.       | "                        |
| City of Toledo                 | Toledo, O.               |
| Christie, Thomas S.            | "                        |
| Connell, Dan (ug)              | Sandusky, O.             |
| City of Nicolett               | "                        |
| City of Dresden                | "                        |
| Cinda                          | "                        |
| Chipman, Susie                 | Sheboygan, Wis.          |
| Colonial                       | Ogdensburg, N. Y.        |
| City of Milwaukee              | "                        |
| City of Grand Haven            | Mich.                    |
| City of Cleveland              | Toledo, O.               |
| City of Holland                | Holland, Mich.           |
| Clinton                        | Port Clinton, O.         |
| Chippewa                       | Toronto, Ont.            |
| Cibola                         | "                        |
| Chiora                         | "                        |
| Campana                        | "                        |
| Conestoga                      | Erie, Pa.                |
| Davidson, Thos.                | Milwaukee                |
| Dyer, G. H.                    | "                        |
| Duncan, John                   | "                        |
| Duncan, Maggie                 | "                        |
| Delaware                       | Buffalo                  |
| Devereaux                      | Cleveland                |
| Davis, C. H.                   | Port Huron, Mich.        |
| Dispatch                       | "                        |
| Domination                     | Sarnia, Ont.             |
| Donaldson, J. P.               | Bay City, Mich.          |
| Drake, M. M.                   | Chicago                  |
| Doty, L. R.                    | Chicago                  |
| Dix, John A.                   | S. Chicago               |
| Duluth                         | "                        |
| Dove                           | Toledo, O.               |
| Denver                         | Ogdensburg, N. Y.        |
| Egan, W. M.                    | Milwaukee                |
| Empire State                   | Buffalo                  |
| Eddy, J. F.                    | Port Huron, Mich.        |
| Elfin-Mere                     | Chicago                  |
| Edwards, Wm.                   | "                        |
| Eddy, C. A.                    | "                        |
| Elphic, C. W.                  | "                        |
| Everett, A.                    | South Chicago            |
| Evening Star                   | Toledo, O.               |
| Erwin                          | Sandusky, O.             |
| Erie                           | "                        |
| Empire                         | "                        |
| Escanaba                       | Ogdensburg, N. Y.        |
| Emily, Rhoda                   | "                        |
| Enterprise                     | Alpena, Mich.            |
| Flower, R. P.                  | Milwaukee                |
| Florida                        | Buffalo                  |

### Steam Vessels.

| NAME.                  | PORT.              |
|------------------------|--------------------|
| Fay, J. S.             | Cleveland          |
| Folsom, A.             | Detroit            |
| Forest City            | "                  |
| Fisk, Jr., James       | "                  |
| Forbes, K. M.          | Port Huron, Mich.  |
| Fairbank, N. K.        | Chicago            |
| Farwell, J. H.         | "                  |
| Foster, Parks          | "                  |
| Fryer, Robt. L.        | South Chicago      |
| Frontenac              | Chicago            |
| Frost, W. L.           | Ogdensburg, N. Y.  |
| Faxon, T. S.           | "                  |
| Grand Haven, Mich.     | "                  |
| Fletcher, F. W.        | Alpena, Mich.      |
| Flint, O. T.           | St. Clair, Mich.   |
| Fedora                 | Erie, Pa.          |
| Gilbert, W. H.         | Buffalo            |
| Gladstone              | "                  |
| Grand Traverse         | "                  |
| German                 | Cleveland          |
| Globe                  | "                  |
| Grover, M. B.          | "                  |
| Gowen, A. Y.           | "                  |
| Griffin                | "                  |
| Green, C. H.           | Saginaw, Mich.     |
| Gould, E. P.           | "                  |
| Gladiator              | "                  |
| Guide                  | Oswego, N. Y.      |
| Gogebic                | Port Huron, Mich.  |
| Groh, Mary             | "                  |
| Germanic               | Chicago            |
| Gilchrist, J. C.       | "                  |
| Gratwick, W. H. (wood) | "                  |
| Gould, Geo. J.         | Toledo, O.         |
| Gault, John C.         | "                  |
| Germania               | "                  |
| Groh, Michael          | Sandusky, O.       |
| Ganges                 | "                  |
| Gill, Alice M.         | "                  |
| Grand Haven, Mich.     | "                  |
| Grecian                | Ashtabula, O.      |
| Garden City            | Alpena, Mich.      |
| Hadley, G. G.          | Buffalo            |
| Hagerman               | "                  |
| Hoyt, Colgate          | "                  |
| Havana                 | Tonawanda, N. Y.   |
| Hale, E. B.            | Cleveland          |
| Hesper                 | "                  |
| Hall, S. C.            | "                  |
| Hackett, R. J.         | Detroit            |
| Houghton, H.           | "                  |
| Huron City             | "                  |
| Hurlbut, Chauncy       | "                  |
| Hebard, Charles        | "                  |
| Hall, J. E.            | Oswego, N. Y.      |
| Harley                 | Port Huron, Mich.  |
| Haight, Kittie         | "                  |
| Hudson                 | Chicago            |
| Hope, Geo. T.          | "                  |
| Hill, J. J.            | "                  |
| Hurd, J. L.            | "                  |
| Harper, John           | Fairport, O.       |
| Haves, R. J.           | Sandusky, O.       |
| Haskell, Wm. A.        | Ogdensburg, N. Y.  |
| Hecla                  | "                  |
| Hiawatha               | "                  |
| Hopkins, A. L.         | "                  |
| Hall, John E.          | Kingston, Ont.     |
| Hopkins, Mark          | St. Clair, Mich.   |
| Inter Ocean            | Milwaukee          |
| Idaho                  | "                  |
| India                  | Buffalo            |
| Italia                 | "                  |
| Iroquois               | Detroit            |
| Ionia                  | "                  |
| Iron Age               | Chicago            |
| Iron King              | "                  |
| Iron Chief             | "                  |
| Iron Duke              | "                  |
| Japan                  | Buffalo            |
| Joliet                 | Cleveland          |
| Jenks, E. H.           | Port Huron, Mich.  |
| Jessie                 | Sarnia, Ont.       |
| James, H. R.           | "                  |
| Junata                 | "                  |
| Johnson, H. J.         | "                  |
| Jewett, H. J.          | "                  |
| Johnson                | Sandusky, O.       |
| Josephine              | Ogdensburg, N. Y.  |
| Joe                    | Grand Haven, Mich. |
| Ketcham, J. B.         | Buffalo            |
| King, George           | "                  |
| Kaliyuga               | Cleveland          |
| Kershaw                | "                  |
| Ketchum                | "                  |
| Keystone               | "                  |
| Kirby, S. J.           | Detroit            |
| Kendall, R. J.         | Marysville, Mich.  |
| Kelton, Minnie         | Bay City           |
| Ketcham, W. P.         | Chicago            |
| Kelly, Fred            | Tonawanda, N. Y.   |
| Kearsarge              | South Chicago      |
| Kunz, Dan              | Sandusky, O.       |
| Kalkaska               | St. Clair, Mich.   |
| Lycoming               | Milwaukee          |
| Lackawanna             | Buffalo            |
| Lehigh                 | "                  |
| Louisiana              | "                  |
| Lyon, J. B.            | "                  |
| LaSalle                | Cleveland          |
| Loretta                | Detroit            |
| Langell, Simon         | "                  |
| Leuty, D.              | Bay City           |
| Lindsay, A. G.         | Chicago            |
| Lansing                | "                  |
| Lockwood, C. B.        | "                  |
| Livingstone            | "                  |
| Leland                 | Sandusky, O.       |
| Lewiston               | Ogdensburg, N. Y.  |
| Langdon, J. R.         | "                  |
| Langell Boys           | St. Clair, Mich.   |
| Maryland               | Milwaukee          |
| Manchester             | "                  |
| Manhattan              | "                  |
| Massachusetts          | "                  |
| Merrimac               | "                  |
| Minnesota              | "                  |
| Marion                 | "                  |
| Monteagle              | "                  |
| Marshall, Samuel       | "                  |
| Mathew, Saml.          | Buffalo            |
| Matham, Thomas         | "                  |
| Mercer, Fred           | "                  |
| Mills, Robert          | "                  |
| Missona                | "                  |
| Mitchell, John         | "                  |
| Montana                | "                  |
| Manila                 | Cleveland          |
| Marina                 | "                  |
| Mariska                | "                  |
| Manchester             | "                  |
| Manhattan              | "                  |
| Massachusetts          | "                  |
| Merrimac               | "                  |
| Minnesota              | "                  |
| Marion                 | "                  |
| Monteagle              | "                  |
| Marshall, Samuel       | "                  |
| Mathew, Saml.          | "                  |
| Matham, Thomas         | "                  |
| Mercer, Fred           | "                  |
| Mills, Robert          | "                  |
| Missona                | "                  |
| Mitchell, John         | "                  |
| Montana                | "                  |
| Manila                 | Cleveland          |
| Marina                 | "                  |
| Mariska                | "                  |
| Manchester             | "                  |
| Manhattan              | "                  |
| Massachusetts          | "                  |
| Merrimac               | "                  |
| Minnesota              | "                  |
| Marion                 | "                  |
| Monteagle              | "                  |
| Marshall, Samuel       | "                  |
| Mathew, Saml.          | "                  |
| Matham, Thomas         | "                  |
| Mercer, Fred           | "                  |
| Mills, Robert          | "                  |
| Missona                | "                  |
| Mitchell, John         | "                  |
| Montana                | "                  |
| Manila                 | Cleveland          |
| Marina                 | "                  |
| Mariska                | "                  |

### Steam Vessels.

| NAME.                | PORT.              |
|----------------------|--------------------|
| Maritana             | Cleveland          |
| Maruba               | "                  |
| Masaba               | "                  |
| Matoa                | "                  |
| Minch, Philip        | "                  |
| Mitchell, Samuel     | "                  |
| Majestic             | Detroit            |
| Moran, J. V.         | "                  |
| Martin, R.           | "                  |
| Mohegan              | Saginaw, Mich.     |
| Maine                | Marine City        |
| Maine                | "                  |
| Malagascor           | Port Huron         |
| Monohansett          | "                  |
| Mineral Rock         | "                  |
| Merrick, M. F.       | "                  |
| Monarch              | Sarnia, Ont.       |
| McRae                | "                  |
| Mills, J. E.         | Marysville, Mich.  |
| Manistique           | Bay City           |
| Mecosta              | Chicago            |
| Morley, G. W.        | "                  |
| Mohawk               | "                  |
| Moore, J. W.         | "                  |
| Milwaukee            | "                  |
| Merida               | South Chicago      |
| Manitou              | "                  |
| Marguerite           | Toledo, O.         |
| Monk, John E.        | Sandusky, O.       |
| McVittie, A.         | Ogdensburg, N. Y.  |
| McGregor, M. A. G.   | Haven, Mich.       |
| Muskegon             | Holland            |
| Mariposa             | Ashtabula, O.      |
| Michigan, (U. S. S.) | Erie, Pa.          |
| Mahoning             | "                  |
| Neosho               | Milwaukee          |
| Neshota              | Buffalo            |
| Niko                 | "                  |
| Northern Queen       | "                  |
| Northern Star        | "                  |
| Northern Wave        | "                  |
| North West           | "                  |
| North Wind           | "                  |
| Norwalk              | "                  |
| Nahant               | Cleveland          |
| Nicholas, I. W.      | "                  |
| Northern King        | "                  |
| Northern Light       | "                  |
| Nicol, J. M.         | Detroit            |
| Nipigon              | "                  |
| Newaygo              | Port Huron, Mich.  |
| New Orleans          | Chicago            |
| Nyanza               | "                  |
| New York             | "                  |
| Nimick, Alex.        | Fairport, O.       |
| Norma                | Sandusky, O.       |
| Nellie               | Grand Haven, Mich. |
| Norman               | Ashtabula, O.      |
| Outwaite, J. H.      | Milwaukee          |
| Oceanica             | Buffalo            |
| Orr, Arthur          | "                  |
| Owego                | "                  |
| Oliver, M.           | Cleveland          |
| Olympia              | "                  |
| Oregon               | "                  |
| Ogemaw               | Detroit            |
| Oscoda               | Saginaw, Mich.     |
| Omaha                | Oswego, N. Y.      |
| Ontario              | Sarnia, Ont.       |
| Oades, John          | Chicago            |
| Owen, John           | "                  |
| Owen, J. Emory       | "                  |
| Omaha                | Kingston, Ont.     |
| Onoko                | Erie, Pa.          |
| Pabst, Fred          | Milwaukee          |
| Pratt, P. P.         | "                  |
| Packer, H. E.        | Buffalo            |
| Packer, R. A.        | "                  |
| Pillsbury            | "                  |
| Pope, E. C.          | "                  |
| Portage              | "                  |
| Pease, E. S.         | Cleveland          |
| Pioneer              | "                  |
| Passadena            | "                  |
| Pontiac              | "                  |
| Presley, George      | "                  |
| Pickands, H. S.      | Detroit            |
| Pridgen, John Jr.    | "                  |
| Panley, J. H.        | "                  |
| Porter, Lloyd S.     | Port Huron, Mich.  |
| Pawnee               | "                  |
| Point Abino          | Marysville         |
| Progress             | Chicago            |
| Peck, E. M.          | "                  |
| Palmer, T. W.        | "                  |
| Parker, A. A.        | "                  |
| Prince, F. H.        | "                  |
| Peerless             | "                  |
| Pathfinder           | South Chicago      |
| Pastime              | Toledo, O.         |
| Panther              | "                  |
| Peerless             | Sandusky, O.       |
| Pentland             | Grand Haven, Mich. |
| Pilgrim              | St. Clair          |
| Quito                | Oswego, N. Y.      |
| Queen of the West    | Chicago            |
| Queen of the West    | Kingston, Ont.     |
| Ralph, P. J.         | Milwaukee          |
| Ranney, R. P.        | "                  |
| Roumanit             | "                  |
| Rochester            | Buffalo            |
| Russia               | Tonawanda, N. Y.   |
| Republic             | Cleveland          |
| Riverside            | "                  |
| Raleigh              | Detroit            |
| Rose, D. F.          | Marine City, Mich. |
| Runnels, H. E.       | Port Huron         |
| Runnels, D. N.       | "                  |
| Roy, S.              | "                  |
| Roby, Geo. W.        | Chicago            |
| Richards, Ruben      | "                  |
| Rhodes, R. R.        | "                  |
| Reynolds, S. C.      | Toledo, O.         |
| Rust, David W.       | "                  |
| Robertson, Anna      | Sandusky, O.       |
| Ruge, John           | Ogdensburg, N. Y.  |
| Rose, Fanny M.       | "                  |
| Roman                | Grand Haven, Mich. |
| Rosedale             | Ashtabula, O.      |
| Schlesinger          | Milwaukee          |
| Saranac              | Buffalo            |
| Seneca               | "                  |
| Shrigley, J. B.      | "                  |
| Shuck, R. H.         | "                  |
| Stevens, W. H.       | "                  |
| Syracuse             | "                  |
| Sawyer               | Tonawanda, N. Y.   |
| Becker, W. D.        | Cleveland          |
| Smith, Ed. No. 1     | "                  |
| Smith, Ed. No. 2     | "                  |
| Schoolcraft          | "                  |
| Saxon                | Cleveland          |
| Sheriffs, Jim        | "                  |
| Sitka                | "                  |
| Specular             | "                  |
| Spokane              | "                  |
| State of New York    | "                  |
| State of Ohio        | "                  |

### Steam Vessels.

| NAME.                          | PORT.              |
|--------------------------------|--------------------|
| Superior                       | Cleveland          |
| Swain, V.                      | "                  |
| Starke, C. H.                  | Detroit            |
| Seattle                        | "                  |
| Swallow                        | "                  |
| St. Paul                       | "                  |
| Sibley, H. W.                  | "                  |
| Sanila                         | Saginaw, Mich.     |
| Sicken, M.                     | Marine City        |
| Ste. Marie                     | "                  |
| Salina                         | "                  |
| Sumner, Alanson                | "                  |
| St. Lawrence                   | Oswego, N. Y.      |
| Saunders, W. F.                | Port Huron, Mich.  |
| Stone, Geo.                    | "                  |
| Stimson, T. D.                 | "                  |
| Stewart, Rhoda                 | "                  |
| Sibley, Hiram                  | "                  |
| Spirit                         | "                  |
| Smith, Lilly                   | Sarnia, Ont.       |
| Smith, Gov.                    | Chicago            |
| Siberia                        | "                  |
| Mohawk                         | "                  |
| Samo                           | "                  |
| Spencer, Geo.                  | "                  |
| Stadford, W. R.                | "                  |
| Street, C. A.                  | "                  |
| Spinner F.                     | South Chicago      |
| Shenandoah                     | "                  |
| Shores, Adella                 | "                  |
| Superior                       | "                  |
| Sage, Russell                  | Toledo, O.         |
| Saginaw                        | "                  |
| Sigma                          | "                  |
| Schnoor, H. C.                 | Sandusky, O.       |
| Stone, W. A.                   | "                  |
| Saginaw Valley                 | "                  |
| Ogdensburg, N. Y.              | "                  |
| Sport                          | Grand Haven, Mich. |
| St. Lawrence                   | Kingston, Ont.     |
| Soo City                       | Holland, Mich.     |
| Sparta                         | St. Clair          |
| Shepard, Sakie                 | "                  |
| Topeka                         | Milwaukee          |
| Tacoma                         | Buffalo            |
| Tampa                          | "                  |
| Tice, E. S.                    | "                  |
| Tioga                          | "                  |
| Tuttle, H. A.                  | "                  |
| Toledo                         | Detroit            |
| Turner, A. A.                  | Saginaw, Mich.     |
| Tempest, No. 2                 | "                  |
| Marine City, Mich.             | "                  |
| Tempest, No. 1                 | "                  |
| Tuscarora                      | Chicago            |
| Toltec                         | "                  |
| Tower, Jr. C.                  | "                  |
| Thompson, A. D.                | "                  |
| Susquehanna                    | Erie, Pa.          |
| United Empire                  | Sarnia, Ont.       |
| Uganda                         | Chicago            |
| Vance, F. L.                   | Milwaukee          |
| Veronica                       | "                  |
| Vanderbilt                     | Buffalo            |
| Viking                         | Tonawanda, N. Y.   |
| Vulcan                         | Port Huron, Mich.  |
| Vad, Walter                    | Chicago            |
| Vega                           | Lorain, O.         |
| Vulcan                         | "                  |
| Valley City                    | Toledo, O.         |
| Volunteer                      | "                  |
| Valley Mills                   | Sandusky, O.       |
| Wetmore                        | Milwaukee          |
| Westover                       | "                  |
| Wolf, W. H.                    | "                  |
| Waverly                        | "                  |
| Washburn                       | Buffalo            |
| Weed, E. P.                    | "                  |
| Wilhelm                        | "                  |
| Wilbur, E. P.                  | "                  |
| Wissahickon                    | "                  |
| Wotan                          | "                  |
| Wright, A. P.                  | "                  |
| Wyoming                        | Buffalo            |
| White Star                     | Tonawanda, N. Y.   |
| Wade, J. H.                    | Cleveland          |
| Waukena                        | "                  |
| Whitaker, B. Port Huron, Mich. | "                  |
| Weston, A. C.                  | Chicago            |
| Williams, Geo. F.              | South Chicago      |
| Wallace, Robt.                 | Lorain, O.         |
| Wallace, C. B.                 | Toledo, O.         |
| Wehrle, A. W.                  | Sandusky, O.       |
| West, Charles                  | "                  |
| Grand Haven, Mich.             | "                  |
| Wyoming                        | Alpena, Mich.      |
| Westford                       | "                  |
| Wilson, Thos.                  | Duluth, Minn.      |
| Yakima                         | Cleveland          |
| Yuma                           | Chicago            |

### SAIL VESSELS.

| NAME.                | PORT.              |
|----------------------|--------------------|
| Amboy.....           | Milwaukee          |
| Ash.....             | "                  |
| Adams, G. W.....     | "                  |
| Alverson, H. D.....  | "                  |
| Adriatic.....        | Buffalo            |
| Allegheny.....       | "                  |
| Anderson.....        | Tonawanda, N. Y.   |
| Atwater, S. T.....   | "                  |
| Aberdeen.....        | Cleveland          |
| Albany.....          | Marine City, Mich. |
| Arenac.....          | Port Huron         |
| Ames, H.....         | Sarnia, Ont.       |
| Azor.....            | "                  |
| Alaska.....          | Marysville, Mich.  |
| Antelope.....        | Bay City           |
| Agnes.....           | "                  |
| Aleonor.....         | Chicago            |
| Ashland.....         | South Chicago      |
| Arthur.....          | Toledo, O.         |
| Andrews, A. L.....   | "                  |
| Abbie.....           | Sheboygan, Wis.    |
| Amuden, C.....       | "                  |
| Alert.....           | Grand Haven, Mich. |
| Addie.....           | Holland            |
| Argosy.....          | Ogdensburg, N. Y.  |
| Ajax.....            | "                  |
| Argo.....            | "                  |
|                      |                    |
| Barr, H. A.....      | Milwaukee          |
| Barium, J. J.....    | "                  |
| Bliss, A. T.....     | "                  |
| Brunette.....        | "                  |
| Bourke, M.....       | Tonawanda          |
| Baldwin, N. P.....   | Cleveland          |
| Becker, W. D.....    | "                  |
| Biwabic.....         | "                  |
| Brown, Senator.....  | "                  |
| Brenton.....         | "                  |
| Brace, E. F.....     | Detroit            |
| Bay City.....        | "                  |
| Brown, H. H.....     | "                  |
| Buckhout, B. B.....  | Saginaw, Mich.     |
| Betts, Lizzie P..... | "                  |
| Buckeye State.....   | Marine City        |
| Boschel.....         | "                  |



### New Ships—Additional Reports from Builders.

The contract let this week in the office of Pickands, Mather & Co., Cleveland, to the Chicago Ship Building Company, for a steamer 400 feet over all, is not an affair in which the Minnesota Steamship Company is interested. The boat is for the Interlake Company, a corporation controlled by members of the firm of Pickands, Mather & Co., and which already owns the steel steamer Kearsarge. Negotiations undertaken some time ago by the Minnesota Steamship Company for a steamer of similar dimensions, as well as one or two steel schooners, are still pending. As contracts of this kind are gradually being closed, the ship yards begin to fill up, and an idea may be had of the effect, on the general carrying trade of the lakes, that will result from the building of such ships. The list of new lake contracts published by the REVIEW last week, showing in freight vessels a capacity of 33,150 gross tons, indicated a volume of orders that should cause a serious study of the freight question aside from the additional contracts that are now being let. The matter to be considered is, of course, the inability of vessels of the older class to in any way compete with these modern ships. Ten boats of the kind here referred to, will with the dispatch that is given them, carry practically a million tons of freight in a single season. This new boat for the Interlake Company will be 380 feet keel, 400 feet over all, 48 feet beam and 28 feet hold. She will have a water bottom of 5½ feet, which is practically a foot deeper than any of the water bottoms of other large freighters, and she is expected to carry 4,200 tons on 14½ feet draft or 6,000 tons on 18 feet draft. Her engines and boilers will be built by the Cleveland Ship Building Company, and this contract for machinery, together with a big freight boat which that company already has on the stocks, gives to them a very fair share of the work that has so far been placed. Engines will be duplicates of those in the Kearsarge, also built by the Cleveland Ship Building Company, and which have cylinders 23,38 and 62 inches by 40 inches stroke. The boilers will be 14 by 13 feet and will be allowed 170 pounds steam, as against 160 pounds for the Kearsarge boilers. This company also has an order from F. W. Wheeler & Co. to furnish a boiler 11½ by 12 feet for the wooden lumber carrier which the West Bay City firm is to build for the Lake Michigan lumber dealers who were interested in the old Peshtigo line.

The contract closed a few days ago with the Peshtigo Lumber Company of Chicago for a wooden steamer gives F. W. Wheeler & Co. of West Bay City a third boat to build, in addition to considerable rebuilding and repair work. The two steel steamers under contract at this yard, one for Capt. John Mitchell and others of Cleveland and the other for Eddy Bros. and Capt. John Shaw of Bay City, are to be practically duplicates, with the exception that the Eddy-Shaw boat will be equipped with gangways and machinery for handling flour and package freight. These boats will be very big carriers, as their dimensions 372 feet over all by 44½ feet beam and 27 feet hold, are exceeded only by the steamer to be built at South Chicago for the Interlake Company of Cleveland. Their cost will be \$170,000 to \$180,000 each. The five lumber barges of the Peshtigo fleet, which were taken in part payment for the new wooden steamer, have been disposed of, Madden Bros. of Bay City taking the Nocque Bay and Mautinee, and P. C. Smith of West Bay City the Active, Alert and Advance. The tug Boscobel is held pending the completion of the contract. The new steamer is to have capacity for 700,000 feet of lumber and will cost about \$75,000.

Five new steamers now under way in lake ship yards are being fitted with Howden hot draft apparatus by the Detroit Dry Dock Company. The boats are the steel steamer for which Eddy Bros. and John Shaw of Bay City let a contract a few days ago with F. W. Wheeler & Co., two big wooden freight steamers being built by Capt. James Davidson of West Bay City, the passenger steamer Arrow launched by the dry dock company at Wyandotte last week, and the wooden lumber carrier being built at Detroit for C. R. Jones and others of Cleveland. The Detroit Dry Dock Company is now paying royalty on the Howden system to the extent of 5,175 horse power.

Berths are now clear at the yard of the Globe Iron Works Company, Cleveland, but work on the passenger steamer North Land is, of course, as yet very extensive, and it is more than probable that a freight boat will be built at this yard for interests in the office of M. A. Hanna & Co., unless a contract is soon secured from outside sources.

The steamer Magnet will be rebuilt during the winter at Sorel, Que. Her berth capacity will be increased to 160 passengers, a new engine put in, the cabin refitted and patent feather paddle wheels put in. Probably \$15,000 will be expended.

Engineer Frank E. Kirby and Secretary Gilbert N. McMillan of the Detroit Dry Dock Company, who have been visiting the ship yards of England and Scotland during several weeks past, are now on the Atlantic, bound home.

It is again reported that the Richelien & Ontario Navigation Company will build a new side-wheel passenger steamer for its Toronto-Montreal route, to cost about \$200,000.

R. J. Cram, dredging contractor, is figuring with the Wolverine Dry Dock Company of Port Huron for the construction of a large tug.

B. B. Inman of Duluth has given the Jenks Ship Building Company of Port Huron an order for a wooden harbor tug.

#### ADDITIONAL REPORTS FROM COAST AND RIVER YARDS.

The following reports of vessels building in different parts of the country were received too late for publication in the REVIEW's annual ship building edition:

Pamlico Railway, Washington, N. C.—Two car barges for Norfolk & Southern Ry., Norfolk, Va., 500 and 350 tons and valued at \$17,000; steam lighter Marie for Old Dominion Steamship Co., New York, 175 tons \$5,000.

Detroit Boat Works, Detroit, Mich.—Steam yacht for Edward Henkel, Detroit, 115 feet over all, 102 feet keel and 8½ feet deep; value \$25,000; to be fitted with pipe boiler, Taylor patent.

Robert Palmer & Son Shipbuilding and Marine Railway Co., Noank, Conn.—Six floats for N. Y. N. H. & H. R. R. Co., 246 by 37 by 10½ feet; one fishing schooner for Atmore B. Allen, Block Island; one fishing steamer for B. W. Latham, Noank, Conn., 65 feet by 15 feet by 7 feet.

Gilbert W. Jewett, W. Troy, N. Y.—Ferry steamer 64 feet over all, 18 feet beam and 8 feet hold; 50 horse power engines; value \$6,000.

A. Axton & Son, W. Brownsville, Pa.—Tow boat for Relief Tow Boat Co., New Cumberland, W. Va., 140 by 26 by 4 feet, \$18,000; tow boat for Posey & Sebolt, 99 Water st., Pittsburgh, Pa., 126 by 23 by 4 feet, \$16,000; negotiating for two more boats.

Samuel H. Barbour, Brewer, Me.—Propeller 90 by 20 by 6 feet, triple expansion engines, by James H. Paine & Co., Boston, Mass; boiler by Wm. Campbell & Co., Cambridgeport, Mass.

Portland Ship Building Co., Portland, Me.—Propeller for Harpswell Steamboat Co., 120 by 23 feet, \$20,000; two twin screw steamers for Presumpscott Steamboat Co., 65 by 12 feet, \$5,000 each.

A contract for the steamer for Wm. P. Clyde & Co., Pier 29, E. R., New York, mentioned in the ship building edition, has been let to the William Cramp & Sons Ship & Engine Building Company, Philadelphia, Pa. She will be 3,500 tons register, 325 feet long, 46 feet beam and 30 feet deep. Engines will be quadruple expansion, and steam will be furnished at 200 pounds pressure.

The following indirect ship building information is added:

Victoria & Black Rock Ferry Co., Kingston, Ont., incorporated to operate vessels on Lake Erie and Niagara river.

The Persia was sold at auction at St. Catharines, Ont., for \$9,700 to John Caruthers. He bought for the Toronto and Montreal Steamboat Co., Toronto, Ont. The company will do business on the St. Lawrence river.

The new steamer John Milne has been launched at Barrie, Ont. She is 112 feet long.

Connolly Bros., Kingston, Ont., are building a \$60,000 dredge.

McNaughton & Co., Montreal, Can., are building a large tug for the Montreal harbor commissioners.

### Miscellaneous Mention.

At a meeting of the Owen Transportation Company in Chicago on the 10th, H. H. Clough of Elyria, O., was elected treasurer and general manager of the company, to succeed W. R. Owen of Chicago. The boats owned by this company are the steel steamers Ira Owen and Parks Foster. They engage largely in the ore trade. This change will cause their management to be practically transferred to Cleveland.

Gregory Hurson, who has been connected with the Goodrich Transportation Company of Chicago for forty years, has resigned and will be succeeded as traffic manager by F. C. Reynolds. Mr. Hurson has purchased the steamer Fremont and is having her rebuilt at Manitowoc. With this boat and others, which he intends to purchase or charter, he is to establish a new line between Chicago and Milwaukee.

The statement that the Ann Arbor railway car ferries had discontinued winter service on Lake Michigan was caused by the route being changed from Frankfort and Menominee to Frankfort and Kewaunee. On one trip last week ferry No. 1 was caught at Death's Door passage in solid ice 10 inches thick with windrows 3 to 10 feet high, but with the use of her forward ice-breaking apparatus she worked her way clear of the blockade.

As a result of the action of the Minnesota Iron Company in placing steam towing machines on two schooners building at Chicago, and the success of one of these machines on the steamer Aurora, other vessel owners operating tows are figuring for machines with the manufacturers, the American Ship Windlass Company of Providence, R. I. Capt. Thomas Wilson and W. C. Richardson of Cleveland are considering the advisability of adopting the machine for their tows.

It is about certain that the naval bill to be reported to the house of representatives in a few days will contain appropriations for beginning the construction of three battleships, as recommended by the secretary of the navy, the boats to be of about 10,000 tons displacement and \$4,000,000 cost each.



## 7,755,494 TONS FOR 1894.

COMPLETE STATISTICS OF LAKE SUPERIOR IRON ORE PRODUCTION—OUTPUT OF MINES, RANGES AND PORTS.

With the assistance of Cleveland ore sales agents, and after a great deal of correspondence with mining companies that shipped only small amounts of ore from stock piles, the REVIEW is enabled to present this week a full statement of shipments by mines, ranges and ports. A supplement accompanying this issue gives the shipments by mines since the opening of the first property in Lake Superior region.

The tables that follow give full details of the entire ore movement, lake and rail. The marquette range leads with 2,049,107 gross tons, while Ashland leads the shipping ports with 1,738,590 tons. Two of the Mesabi mines shipping over 500,000 tons are among the leading shippers. The output of the seven largest properties is as follows: Norrie, 621,608 tons; Messabe Mountain, 573,440; Chandler, 558,050; Mountain Iron, 505,955; Minnesota, 390,463; Pittsburg and Lake Angeline, 355,453; Lake Superior, 334,758.

## SHIPMENTS BY RANGES.

| Ranges.          | 1894,<br>Gross tons. | 1893,<br>Gross tons. | 1892,<br>Gross tons. |
|------------------|----------------------|----------------------|----------------------|
| Marquette .....  | 2,049,107            | 1,835,893            | 2,666,856            |
| Menominee.....   | 1,137,949            | 1,466,197            | 2,261,499            |
| Gogebic .....    | 1,834,086            | 1,329,464            | 2,971,991            |
| Vermillion ..... | 948,513              | 820,621              | 1,167,650            |
| Mesabi .....     | 1,785,839            | 613,620              | 4,245                |
|                  | 7,755,494            | 6,065,795            | 9,072,241            |

## SHIPMENTS BY PORTS.

| Ports.            | 1894,<br>Gross tons. | 1893,<br>Gross tons. |
|-------------------|----------------------|----------------------|
| Escanaba .....    | 1,644,770            | 2,048,981            |
| Ashland .....     | 1,738,590            | 1,117,524            |
| Marquette .....   | 1,424,856            | 1,093,774            |
| Two Harbors ..... | 1,373,253            | 903,329              |
| Duluth.....       | 1,361,043            | 440,292              |
| Gladstone.....    | 79,108               | 203,585              |
| Superior .....    |                      | 80,273               |
| All-rail.....     | 133,874              | 178,037              |
| Total .....       | 7,755,494            | 6,065,795            |

## SHIPMENTS BY MINES.

## MARQUETTE RANGE.

| Mines.             | Gross tons. | Mines.                       | Gross tons. |
|--------------------|-------------|------------------------------|-------------|
| Ames.....          | 5,195       | Negaunee.....                | 132,492     |
| Blue.....          | 32,171      | New York.....                | 21,487      |
| Cambria.....       | 15,931      | Pittsburg & Lake Angeline... | 355,453     |
| Champion.....      | 42,788      | Platt.....                   | 41,226      |
| Cleveland.....     | 143,706     | Queen Iron Mining Co.....    | 250,353     |
| Dexter.....        | 21,740      | Republic.....                | 105,719     |
| Grand Rapids.....  | 12,000      | Volunteer.....               | 26,946      |
| Iron Cliffs.....   | 253,760     | Wheat (Star).....            | 5,550       |
| Jackson.....       | 32,298      | Winthrop.....                | 134,365     |
| Lake Superior..... | 344,758     |                              |             |
| Lillie.....        | 69,559      | Total.....                   | 2,049,107   |
| Michigamme.....    | 1,610       |                              |             |

## MENOMINEE RANGE.

| Mines.            | Gross tons. | Mines.                   | Gross tons. |
|-------------------|-------------|--------------------------|-------------|
| Aragon.....       | 138,209     | Michigan Explo. Co.....  | 77          |
| Chapin.....       | 235,895     | Millie.....              | 13,062      |
| Columbia.....     | 10,300      | Lamont (Monitor).....    | 2,600       |
| Commonwealth..... | 174,921     | Penn Iron Mining Co..... | 175,274     |
| Dunn.....         | 24,538      | Pewabic.....             | 304,010     |
| Florence.....     | 2,726       |                          |             |
| Loretto.....      | 55,983      | Total.....               | 1,137,949   |
| Ludington.....    | 354         |                          |             |

## GOGEBIC RANGE.

| Mines.          | Gross tons. | Mines.           | Gross tons. |
|-----------------|-------------|------------------|-------------|
| Anvil.....      | 12,905      | Newport.....     | 150,392     |
| Ashland.....    | 108,071     | Norrie.....      | 621,608     |
| Aurora.....     | 203,152     | Odanah.....      | 2,437       |
| Brotherton..... | 47,148      | Pabst.....       | 206,074     |
| Cary.....       | 16,559      | Palms.....       | 37,911      |
| Colby.....      | 32,616      | Sunday Lake..... | 34,323      |
| Comet.....      | 11,782      | Superior.....    | 30,597      |
| Eureka.....     | 18,329      | Tilden.....      | 209,077     |
| Iron Belt.....  | 45,109      |                  |             |
| Montreal.....   | 45,996      | Total.....       | 1,834,086   |

## VERMILLION RANGE.

| Mines.         | Gross tons. | Mines. | Gross tons. |
|----------------|-------------|--------|-------------|
| Chandler.....  |             |        |             |
| Minnesota..... |             |        |             |
| Total .....    |             |        |             |

## MESABI RANGE.

| Mines.        | Gross tons. | Mines.                | Gross tons. |
|---------------|-------------|-----------------------|-------------|
| Auburn.....   | 108,210     | Messabe Mountain..... | 505,955     |
| Biwabik.....  | 90,048      | Mountain Iron.....    | 573,440     |
| Canton.....   | 213,853     | Norman.....           | 38,999      |
| Franklin..... | 223,399     | Vega.....             | 5,628       |
| Hale.....     | 24,167      |                       |             |
| Minnewas..... | 2,140       | Total.....            | 1,785,839   |

Grand total, all ranges, lake and rail..... 7,755,494

## Iron Ore Situation.

Iron ore sales agents of Cleveland, all of whom represent some part of the Bessemer output of the Lake Superior mining region, have been holding meetings for two weeks past, and they make no secret of their efforts to reach certain agreements whereby it is expected to bring about, for this year, a moderate restriction in production and some advance over prices that prevailed in 1894. The conferences have as yet resulted in no fixed agreements, on account of the complication of interests involved, but the undertaking does not include the entire output of Bessemer, non-Bessemer, Mesabi, etc., and is moderate enough in its scope to cause expectations of success. Unlike manufacturing industries, in which standards of value are readily established, the ore business has suffered from the inability of the companies and individuals engaged in it to even reach an understanding that would admit of a discussion of prices. Progress has, however, been made along this line in the meetings held recently. That the prices of the past two years have resulted in general demoralization of the industry, to an extent that has left the very best companies with depleted value of property and practically no earnings, there is no doubt. As an instance of this, it may be noted that for two years the Minnesota Iron Company, the greatest of all the corporations, has not declared a dividend, notwithstanding its varied interests in a railroad, docks, ships and all that pertains to the ore from the digging of it to its delivery at furnaces.

Under these conditions the situation is not one of choice but necessity, and it is this fact that gives hope for success in the present movement. If the agreements proposed are carried out, sales of ore may be longer delayed this winter than was expected.

The iron industry, in its present condition, will not, of course, admit of an advance of \$1, or even 50 cents a ton, in the price of ore, as newspaper dispatches have reported, but it is to take the best possible advantage of the situation that the Cleveland meetings have been held. On the first of the present month the manufacture of pig iron throughout the country was at the rate of about 8,750,000 tons annually, with no great accumulation of stocks, so that the consumption of ore is fairly up to expectations upon which a slight advance in prices this year was based, but the rate of values in all branches of the industry continues very low.

## Pewabic Ores.

The Pewabic mine, Menominee range, Michigan, shipped in 1894, 304,010 gross tons of ore, of which 290,656 tons was marketed as Pewabic, 1,034 as Toledo and 3,013 as Tyrone.

The Toledo ore is a low phosphorus ore carrying high silica, and iron from 40 per cent. to 50 per cent. as desired by purchaser. The phosphorus guarantee is fifteen thousandths of one per cent. The Tyrone ore is a non-Bessemer ore, 125 phosphorus and 64 per cent. iron.

Below will be found a series of analysis of Pewabic ore showing the average of the ore produced since the mine became a shipper.

|                     | GROSS TONS. | AVERAGE PER CENT. OF |            |         |
|---------------------|-------------|----------------------|------------|---------|
|                     |             | IRON.                | PHOSPH'RUS | SILICA. |
| 1890 Shipments..... | 26,991      | 63.89                | .0084      | 4.32    |
| 1891 " .....        | 63,444      | 63.51                | .0081      | 4.00    |
| 1892 " .....        | 113,744     | 64.28                | .0086      | 3.75    |
| 1893 " .....        | 165,701     | 64.71                | .0083      | 3.40    |
| 1894 " .....        | 290,656     | 64.59                | .0076      | 3.50    |

Of the 1894 shipments,

|                               |                           |
|-------------------------------|---------------------------|
| 23 cargoes showed by analysis | .006 per cent. phosphorus |
| 39 " " " "                    | .007 " " "                |
| 34 " " " "                    | .008 " " "                |
| 23 " " " "                    | .009 " " "                |
| 4 " " " "                     | .010 " " "                |

The Grand Lodge, Shipmasters' Association, which meets once a year, is at present in session at Detroit. A correct report of such parts of its proceedings as are made public will be printed next week. In the matter of conferring with the standing committees of the Lake Carriers' Association on the proposed change in rules relating to passing and fog signals, it has been decided to have a delegate from each lodge on the lakes join the Lake Carriers at the conference to be held in Cleveland on Saturday of this week.

Headquarters of the Lake Superior Consolidated Mines (Rockefeller syndicate) are at No. 1 Broadway, New York. Officers are: President, Fred T. Gates; vice-president, Geo. D. Rogers; secretary and treasurer, Charles E. Scheide; general counsel, Geo. Welwood Murray.

It is true that the Olivers of Pittsburgh have secured an option on the fee of the Lone Jack mine, Mesabi range, and will probably purchase and operate the property.



### A few Views of the Big Passenger Boats.

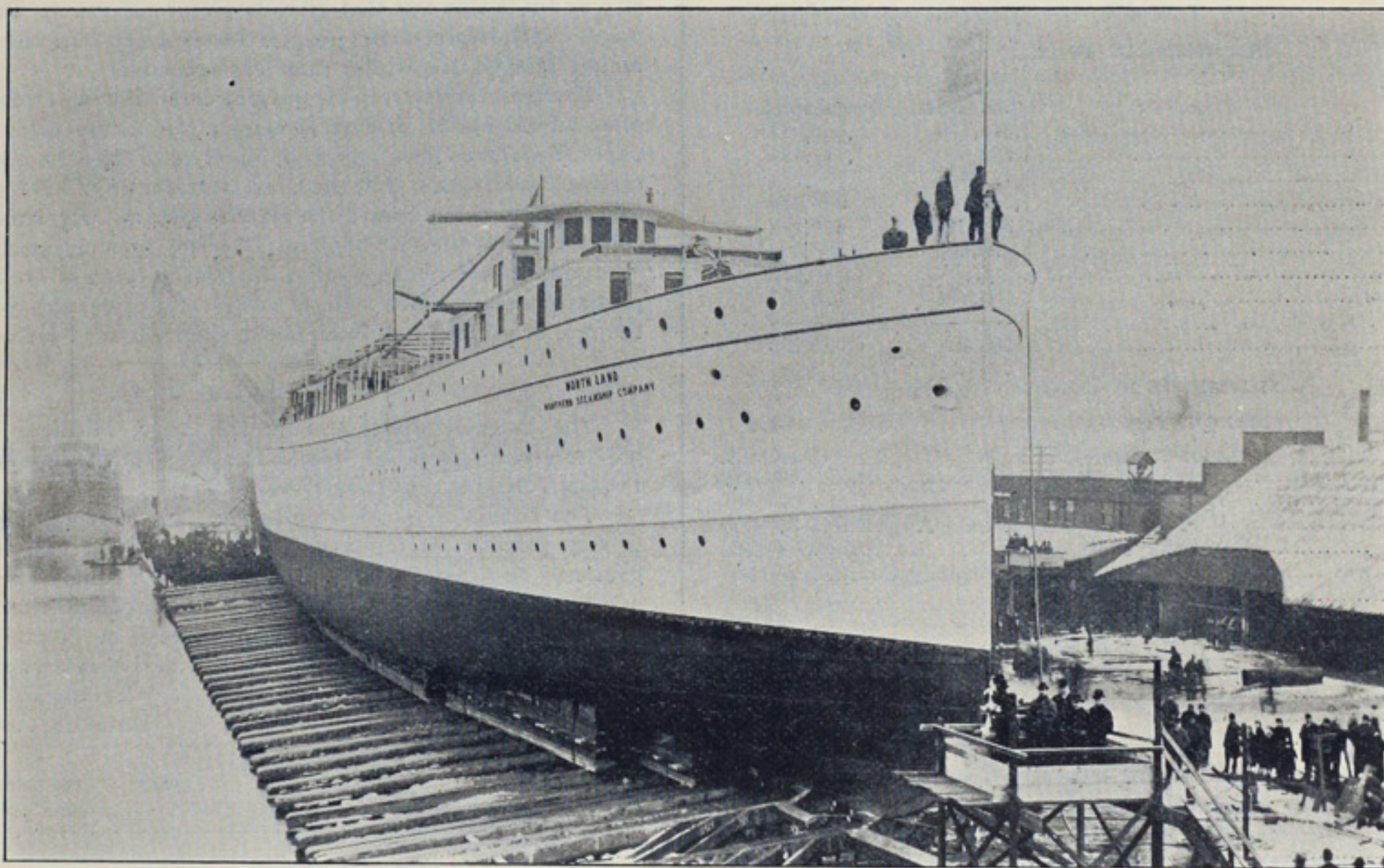
Principally for their attractiveness, a large view of the Northern line passenger ship North Land on the stocks before launching, and several smaller views of the interior of her sister-ship, the North West, are presented on this and the following page. The small circular engravings are reproduced from large photographs of the interior of the North West, which were taken while the boat was in commission last season. They indicate better than any description of these boats the elegance of their cabins and other interior parts. A great deal has been written about these ships and their connection with high-class passenger service on the lakes. When both are in commission next season, and both running to Mackinaw island, the most noted of lake summer resorts, it is probable that they will attract even more attention than was given them while under construction, as there is little doubt now of patronage being fully up to the expectations of the owners.

### Passing Signals in Fog.

Editor MARINE REVIEW.—In your issue of May 17 last you published a letter addressed to me by Capt. John Lowe, on the subject of passing signals in fog. The subject is of great importance to vessel masters on the lakes, but during the season of navigation there was, of course, no time to take it up in a proper manner. Now that it is expected, however,

Conference intended that any such regulation should apply to the lakes, and the board of inspectors, whether they charge it to the conference or not, should have considered the matter more carefully before foisting on lake pilots this detestable ruling.

Let me explain why I speak this way: In 1885 the congress of the United States adopted the English law of 1879. This is the law now in force on our statute books, but in the act adopting the English rule congress excepted the inland waters of this United States. Mr. Charles Hall, M. P., of Great Britain, the chairman of the English delegation, and one of the best authorities on admiralty law in Europe, and perhaps America too—the man who was the master mind in the International Marine Conference,—said early in the deliberations at Washington: "I want to point out that this proposal has no reference to inland waters. We have not the slightest idea that it is to apply to inland waters, except in cases where there are no local rules." Mr. William W. Goodrich is similarly quoted in the same debate. He was a lawyer, the chairman of the American delegation, and a man considered an authority on admiralty law. He says that when congress adopted the rule of 1885 it excepted from operation of the act "vessels navigating the internal waters of the United States." It left in operation the rules promulgated by the inspector general of steamboats. Captain Frederick Malmberg (Sweden) also says in debate: "Any country which has inland waters and rivers will have to provide special rules for such navigation." Again Mr. August



NORTHERN LINE PASSENGER SHIP NORTH LAND, JUST BEFORE LAUNCHING.

Launched at Ship Yard of Globe Iron Works Company, Cleveland, Jan. 5, 1895.

that the whole matter of pilot rules is to be given consideration this winter by vessel masters and owners, I hope you will give place to the following answer to Capt. Lowe:

To Capt. John Lowe, Cleveland, Sir.—Some time ago you wrote to me a letter on the subject of the circular issued last spring by the supervising inspector of steam vessels to lake pilots and masters, directing them not to blow to an approaching steamer in fog, mist or falling snow, or thick weather, an intelligent passing signal; or in other words, this circular declares that you must not say in the whistle language to the boat you are meeting in fog "I will pass you safe on the right side or I will pass safe on the left," and prompt the other fellow to gladly answer "All right, that just suits me. I'll give you some more room;" so both starboard a little or port a little, as the case may be, each blowing to the other until safely passed. I note from the proceedings of the International Marine Conference that one delegate asked if fog, mist and snow were thick weather so considered, but let that pass, and let us turn to the circular prohibiting signals, which seems to emanate from nowhere, for no one wants to father it; Dumont says it was from Westcott, and as Westcott is a pilot he should know; and then again it is said that it came from the International Conference, so it must be right. The conference was in 1889, so that if the circular emanated from that source we have been five years finding out what had been done in Washington by this international board. But I am not at all of the opinion that the International Marine

Garde (Denmark) says: "Nothing shall interfere with the operation of a special rule duly made by local authority relative to safe navigation of rivers or inland waters." He added that there were special rules for the River Scheldt and the Thames river, providing that seagoing vessels when entering those waters always get a pilot or have a code book. Capt. John W. Shackford, master in the merchant marine, another of the American delegates, also took occasion to say that the United States government had a board called the supervising inspectors, appointed for the express purpose of making pilot rules and regulating the safe navigation of the rivers and the great lakes. Let us note also that the invitation which brought together these representatives of various governments called for "rules, regulations and practice of vessels at sea, especially with reference to course directing signals in fog." The term "sea" was used and it was meant in every sense of the word. Not one of the gentlemen present at the conference thought for a moment of making rules for lake pilots; no representative lake pilot was called in at the time of the conference, although the city of Washington at the time was full of them. The United States representative from the seaboard jealously guarded any interference with our inland water navigation by stating that we had a board for that purpose.

But now Capt. Lowe, with this evidence of constant doubt as to our navigation laws here, does it not strike you that it is about time we had a different order of things on the lakes in regard to the makers of our pilot



rules? How long since, can you tell me, have we had a pilot on this board? We have had many engineers making pilot rules for safe navigation, but few captains, especially from the lakes. I take it that to have it appear they are doing something, these supervising inspectors rummage around among dust covered shelves, and finding something like the work of this conference—made as it was for ocean purposes—they exclaim, as in this case: "Here it is, passing signals in fog," and they immediately proceed to put it in circular form. If their circular was based on the conclusions of the conference their action is all the more in error, for if they had looked into the proceedings of that body they would have found that it was course indicating signals in a fog, in mists or falling snow, that were being considered by the conferees all the time. This subject had been in the minds of many members of the conference for years, notably Admiral Nares, who had it down to a fine point of excellence, having a safe and certain number of sounds for any point of the compass. In some there were thirty-two sounds and in the least eight. This scheme was pushed by the landmen, or office sailors, but it was vigorously fought by the practical sailors, as it is now being done in England.

You speak of our conglomeration of whistles in meeting in a narrow stream. The fellow having the right of way must wait for the other fellow to blow. Then he must kick up a fuss about it, and the fellow who blew first must answer back by a tirade of abuse "stop your engines and back her." Then like good children they make up, go at it again and the fellow bound down stream blows now as he should have done in the first place. Let us have this occur in the rapids at Point Edwards, where currents are five miles an hour.

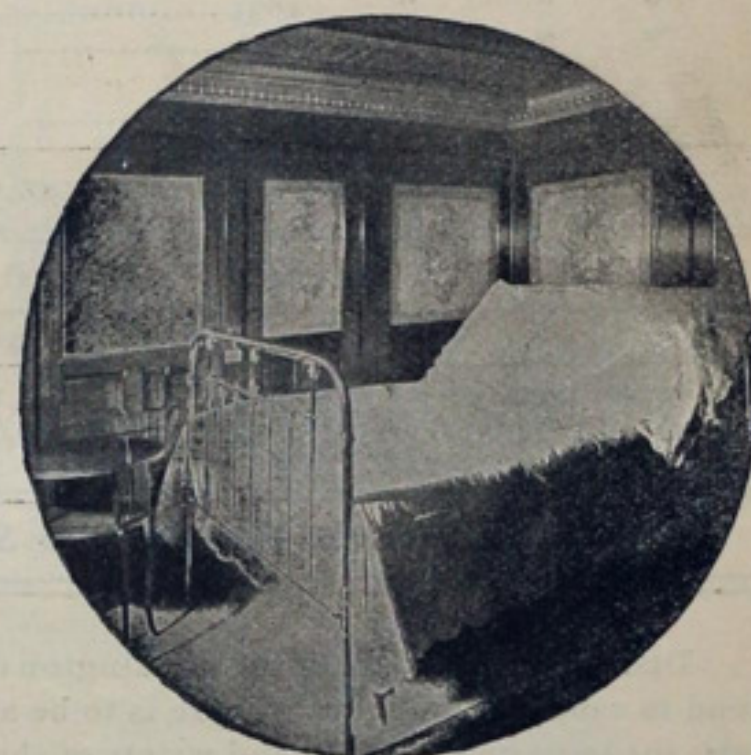
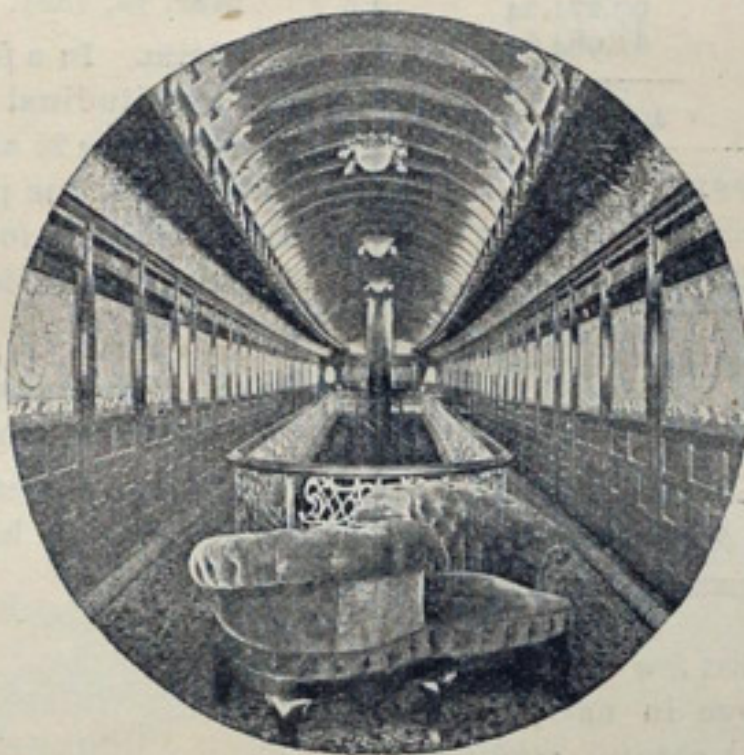
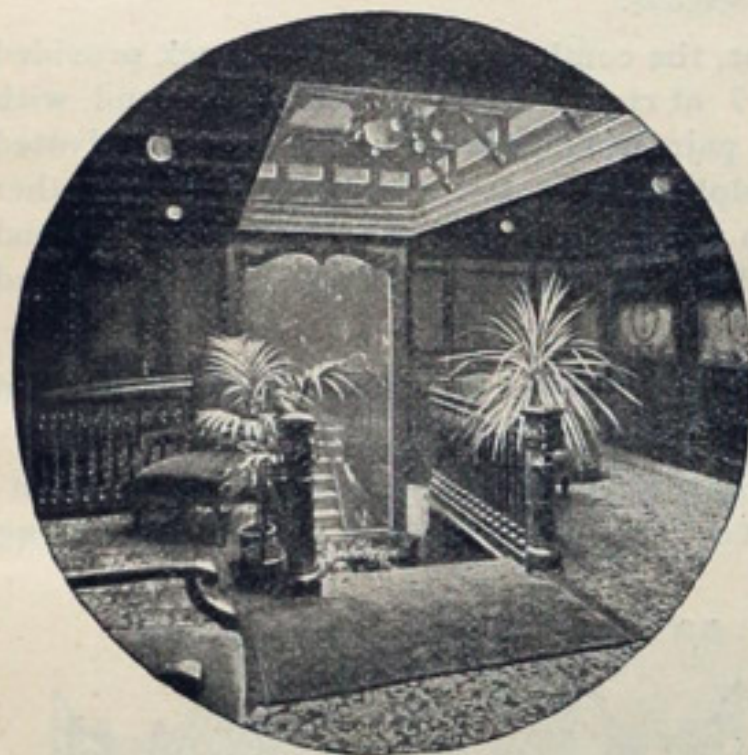
Now, after all our experience with the board of supervisors and its strange interpretation of regulations, we are threatened with having applied to the lakes these rules which the International Marine Conference

### In Support of the Hydrographic Service

Editor MARINE REVIEW:—I was very sorry to see in your issue of the 26th ultimo, an editorial article, which, while it was very well written, gave a very erroneous impression.

In this article you say: "The hydrographic office has been engaged in a practical and beneficial work in getting out books of sailing directions for the lakes, but aside from this, its efforts have not been of the kind to demand immediate attention from the vessel interests when appropriations are needed for more urgent purposes." There is no doubt there are improvements and the like for which appropriations are necessary, but, is it not more vitally necessary that pending these improvements, such as the removal of obstructions to navigation, building of light houses, placing of beacons, the establishment of fog horns, and the host of other improvements necessary on our great lakes, that the mariners on the great lakes be supplied with charts, sailing directions and other nautical publications, which will show him the dangers as they now exist, tell him not only what improvements are contemplated, but what have been appropriated for by the government and are actually under way towards completion. In addition, the hydrographic service during the season of navigation issues a series of bulletins called "notice to mariners on the great lakes," which will tell, not only, just how far work has been taken towards completion at the going to press of each issue, but will give notice of any new obstruction to navigation, and any other news of interest to the lake mariners.

Before the opening of navigation in the spring the sailing directions for lakes Huron, Michigan, Erie and Ontario will have been published, in addition to the Lake Superior directions which are already out, and upon which the REVIEW has commented so favorably. In addition to this



INTERIOR VIEWS NORTHERN LINE PASSENGER SHIPS NORTH WEST AND NORTH LAND.

prepared for the seas. They go into effect in March next and we will, probably up to the eleventh hour, be left in ignorance of the question as to whether they are to be pushed upon us or not. If they are, we will have with the others a bedlam of sounds that will surely thin out the passenger trade, of which you write so feelingly. Under this new regime the fog signal for a tow is three blasts, and these are defined as a prolonged blast, which is just six seconds long with short blasts of one second, so you can imagine some poorly paid pilot hunting around for a cheap second-hand stop-watch and then standing there in a sleet storm timing the sounds. He hears another signal of three blasts ahead and thinks "Well that's a fellow with a tow coming up," but the craft, whatever it may be, is so close that perhaps a collision results, and it may be found that the fellow referred to is blowing three blasts because he is backing his engine; another craft in another direction is blowing two blasts because he is stopped, and still another is blowing two blasts because he wishes to pass on the port side of the fellow ahead. Again, from another point one blast is heard from a fellow who wishes to pass to port, or who is complying with the rule of blowing one blast, as they say you must do, in mist. Is it not high time that the two thousand pilots on these lakes insist on a change being made in the personnel of this pilot regulating board, which has not an active representative pilot in its membership? Or is it not time, that a conference of lake pilots be held, in these days of freight-carrying racers over waters where the mantle of fog sits regularly three months in the year? We have on the lakes masters and pilots who are the peers of any on earth. That they should be asked to submit to the indignity of having pilot rules and laws made for them and put upon them by men who are not acquainted with the handling of craft or the navigation of our waters is a wrong to commerce and a menace to life.

W. S. M.

Cleveland, Dec. 31, 1894.

there is to be a new pilot chart, which we hope will be an improvement upon the chart which is now so well known throughout the great lake region. As fast as accurate surveys are made, charts of the different harbors similar to that of Chicago (H. O. No. 1365, copy of which I enclose in a separate package) will be published. All this work, it must be understood, is being done in addition to the immense work the office is carrying on on the Atlantic and Pacific coasts.

In this article you speak of expense, and argue that if a vast amount of money be spent on the hydrographic service on the great lakes, no money could be gotten for the needed improvements on the great lakes, because all money appropriated by congress is charged up by congressional committees to the district in which the same is used.

Does the REVIEW know how much it took to establish the Cleveland branch hydrographic office? Less than \$1500, and to-day it is the best equipped office in the whole hydrographic service. When the good that it is hoped, and I feel sure the office will do, is taken into account, this is indeed a paltry sum, and as for the expense of running the office, that is all paid for from the lump sum appropriated for the whole hydrographic service, which in the past years has been about \$20,000 per annum—a ridiculously small sum considering the service, and which is not charged up to the congressional district but to the hydrographic office as a branch of one of the bureaus of the navy department.

It is my belief that the REVIEW was acting under a misapprehension in writing the editorial in question, and I feel that its well known sense of fairness will lead the management to correct the wrong impression which in an editorial in a paper of so far reaching an influence as the REVIEW, must do a great amount of harm.

Branch Hydrographic Office,  
Cleveland, Ohio, Jan. 11, 1895.

W. L. COLE,  
Ensign, U. S. Navy.





DEVOTED TO THE LAKE MARINE AND KINDRED INTERESTS.

Published every Thursday at No. 516 Perry-Payne building, Cleveland, O.

SUBSCRIPTION—\$2.00 per year in advance. Single copies 10 cents each. Convenient binders sent, post paid, 75 cents. Advertising rates on application.

The books of the United States treasury department contain the names of 3,341 vessels, of 1,227,400.72 gross tons register in the lake trade. The number of steam vessels of 1,000 gross tons and over that amount on the lakes on June 30, 1894, was 359 and their aggregate gross tonnage 634,467.84; the number of vessels of this class owned in all other parts of the country on the same date was 316 and their tonnage 642,642.50, so that half of the best steamships in all the United States are owned on the lakes. The classification of the entire lake fleet on June 30, 1894, was as follows:

| Class.               | Number. | Gross Tonnage. |
|----------------------|---------|----------------|
| Steam vessels.....   | 1,731   | 843,239.65     |
| Sailing vessels..... | 1,139   | 302,985.31     |
| Canal boats.....     | 386     | 41,961.25      |
| Barges.....          | 85      | 39,214.51      |
| Total.....           | 3,341   | 1,227,400.72   |

The gross registered tonnage of vessels built on the lakes during the past five years, according to the reports of the United States commissioner of navigation, is as follows:

| Year ending June 30, | Number. | Net Tonnage. |
|----------------------|---------|--------------|
| 1890.....            | 218     | 108,515.00   |
| " " " 1891.....      | 204     | 111,856.45   |
| " " " 1892.....      | 169     | 45,168.98    |
| " " " 1893.....      | 175     | 99,271.24    |
| " " " 1894.....      | 106     | 41,984.61    |
| Total.....           | 872     | 406,976.28   |

#### ST. MARY'S FALLS AND SUEZ CANAL TRAFFIC.

|                      | St. Mary's Falls Canal. |            |           | Suez Canal. |           |           |
|----------------------|-------------------------|------------|-----------|-------------|-----------|-----------|
|                      | 1893.                   | 1892.      | 1891.     | 1893.       | 1892.     | 1891.     |
| No. vessel passages  | 12,008                  | 12,580     | 10,191    | 3,341       | 3,559     | 4,207     |
| Ton'ge, net regist'd | 9,849,754               | 10,647,203 | 8,400,685 | 7,659,068   | 7,712,028 | 8,698,777 |
| Days of Navigation   | 219                     | 223        | 225       | 365         | 365       | 365       |

Entered at Cleveland Post Office as Second-class Mail Matter.

DISPATCHES sent out from Washington during the past few days would tend to cause the belief that there is to be a great change in navigation laws for lakes and other inland waters of the country. A careful reading of the reports made by the secretary of the treasury and the commissioner of navigation will show, however, that such is not the case. The secretary of the treasury is simply making provisions so that the rules for preventing collisions at sea, as recommended by the International Marine Conference, and which are to be adopted for seagoing vessels by leading maritime nations on the 1st of March, will not apply to the lakes and other inland waters. The fact that the secretary is making such effort is a matter of comfort to lake vessel owners and masters, who have for some time past been in doubt on the subject, and who are decidedly opposed to having the new law for seagoing purposes apply here. The attorney general holds that the new law will apply here unless provision is made against it before March 1, and the secretary of the treasury has accordingly taken steps to have congress re-enact for inland waters the present laws without change of any kind. Congress will undoubtedly grant the request. Lake masters and vessel owners who are considering a change in passing signals and fog signals will, therefore, find it to their advantage to reach a conclusion in the matter with the close of the present week, as contemplated, and have their special provisions included in the laws now about to be re-enacted. In this way the lake interests may possibly secure in the present congress the few changes that are especially desired, but if the matter is not attended to very shortly, it will probably be found impossible to secure the passage of a supplemental measure before adjournment.

IN ASKING that a commission of government experts be appointed to look into the effect of the Chicago drainage canal on lake levels, vessel owners have been prompted largely by statements from Major Ruffner, corps of engineers, U. S. A., stationed at Buffalo. Major Ruffner made some calculations at Niagara for the war department in 1891-92, and as a result of these calculations he claims that the flow through the Chicago drainage canal, when it is completed some three years hence, will lower the lake level about 0.7 feet. But this determination has been the subject of controversy. In the Engineering News of Dec. 27, 1894, Major Ruffner gives a history of the gagings of the great lakes discharge since 1867, and

of the methods employed by the various investigators, but he leaves the reader to deduce his own opinions as to the accuracy of methods employed in any of the investigations. He does not answer directly the criticisms that have been made regarding his calculations. A later issue of the same journal, date of Jan. 10, 1895, contains an editorial article and a letter from Geo. Y. Wisner of Detroit directing attention to the probability of great error in the Niagara calculations. But the vessel owners want to be certain, if possible, and hence their request for the appointment of a commission of experts to examine the subject.

THE REVIEW has received from E. S. Wheeler, general superintendent of St. Mary's Falls canal, a tabulated statement of passenger and freight traffic through the canal since its opening to navigation in 1855. In connection with the statement is a discussion of the traffic which is brought down to date, in all points that are closed and which contains nearly all of the results so obtained. The statistical tables show great care and neatness in preparation, and for reference purposes the publication is the most valuable as yet issued by the officers in charge of the canal.

FROM ALL of the trade journals the Iron Trade Review of Cleveland is receiving flattering notices of its recent special issue, which contained numerous valuable articles from leading men interested in the iron industry in the central west. These notices are of a deserving kind. Under the direction of Mr. Alvin I. Findley, editor, and Messrs. G. H. and Burt M. Gardner in the business department, the Iron Trade Review has shown a spirit of enterprise during the past two years that should be appreciated.

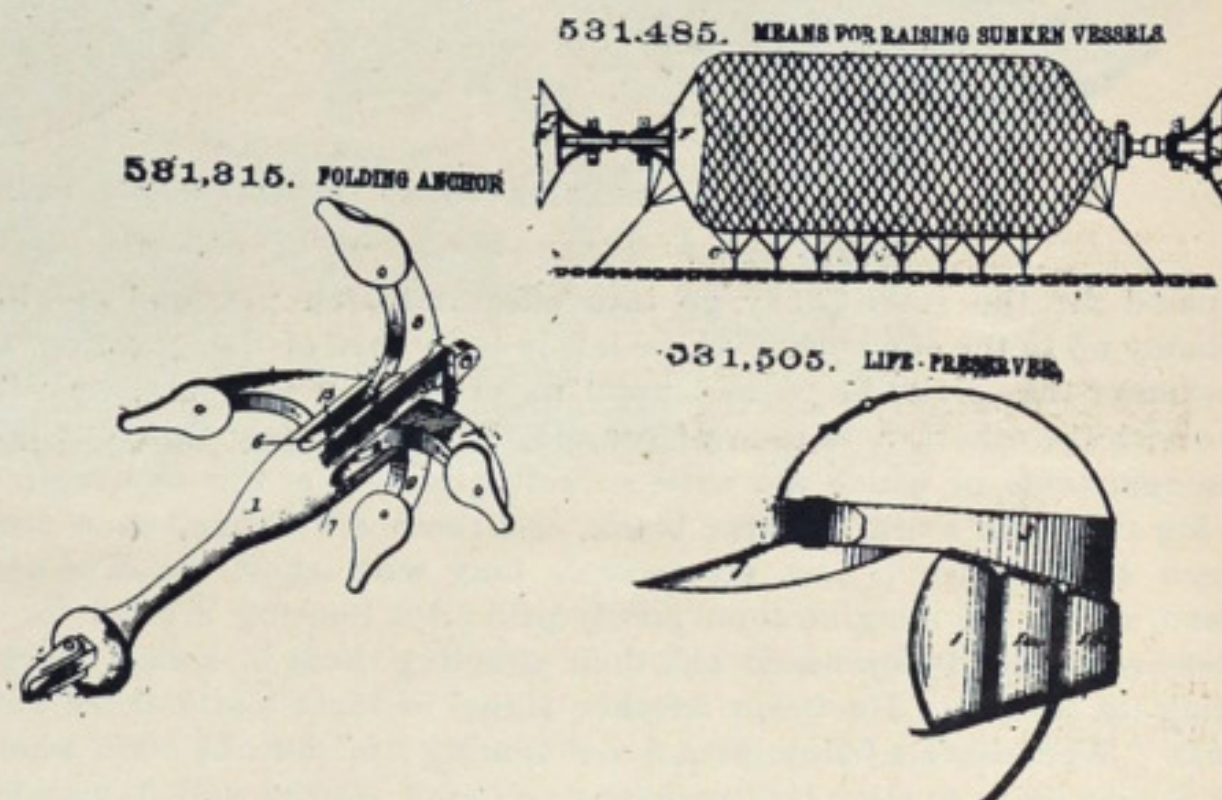
#### Illustrated Patent Record.

531,315. Folding Anchor. Fletcher Joyner, Schenectady, N. Y. Filed Mar. 14, 1894. Serial No. 503,533.

Claim. In a folding anchor, the combination with the stock provided with longitudinal slots 6 and 7 at right angles to each other, and with the shoulders 25 and 26, of two pairs of fluke-arms 8-9 and 11-12, pivoted in said slots, one pair in each slot, and one pair adapted to lock the other pair, in either a folded or open position, by means of the recesses 16 and 17, and the shoulders 33 and 33 on the rear ends of the fluke arms, and the pin 50.

531,485. Means for Raising Sunken Vessel. William A. Turner and Fred E. Turner, Malden, Mass. Filed July 26, 1894. Serial No. 481,492.

Claim. A means for raising sunken vessels, consisting of an inflatable receptacle having a valve inlet comprising a bell-shaped casing



formed in its base with an opening, a clamp for fastening the said casing to the end of the said receptacle, and a pipe mounted to turn in the said casing and formed at its inner end with an opening adapted to register with the opening in the base of the said casing.

531,505. Life Preserver. Jeanette P. Brown, Salt Lake City, Utah. Filed June 5, 1894. Serial No. 513,565.

Claim. In a life preserver, the combination of two or more separate air cushions, each air cushion being divided into separate air tight compartments, a common mouthpiece and tube connecting with each of the separate compartments of each air cushion, the openings from each of said compartments to the tube, and independently and positively operating valves for opening and closing said connections, the band to which the air cushions are attached, the head straps which hold said band up and the additional straps for holding the cushions down in position.

The civil sundry appropriation bill as reported to the house of representatives contains additional appropriations for the two revenue cutters to be built for the lakes and New England coast, and a new item for a boat for the Pacific coast.



### New Officers in Lake Associations, M. E. B. A.

M. E. B. A. No. 53 of Marine City, Mich.: President, Joseph Vallie; vice-president, Chas. Burns; treasurer, Michael Brittz; financial secretary, Frank Onelette; recording secretary, Edward Hill; corresponding secretary, Harry Stone; chaplain, David Burns; conductor, Felix Hasler; door-keeper, Frank Burns; past president, Henry Wonsey; delegate to national convention, Chas. J. Love.

M. E. B. A. No. 72 of Oswego, N. Y.: President, P. Daugherty; vice-president, Pardon E. Perkins; recording secretary, Jas. Donovan; corresponding secretary, T. Navagh; financial secretary, M. Gordon; treasurer, R. Cronley; conductor, S. T. Axtell; door-keeper, John Jared; chaplain, A. Griffin; trustees, S. Axtell, John Jared and J. Donovan.

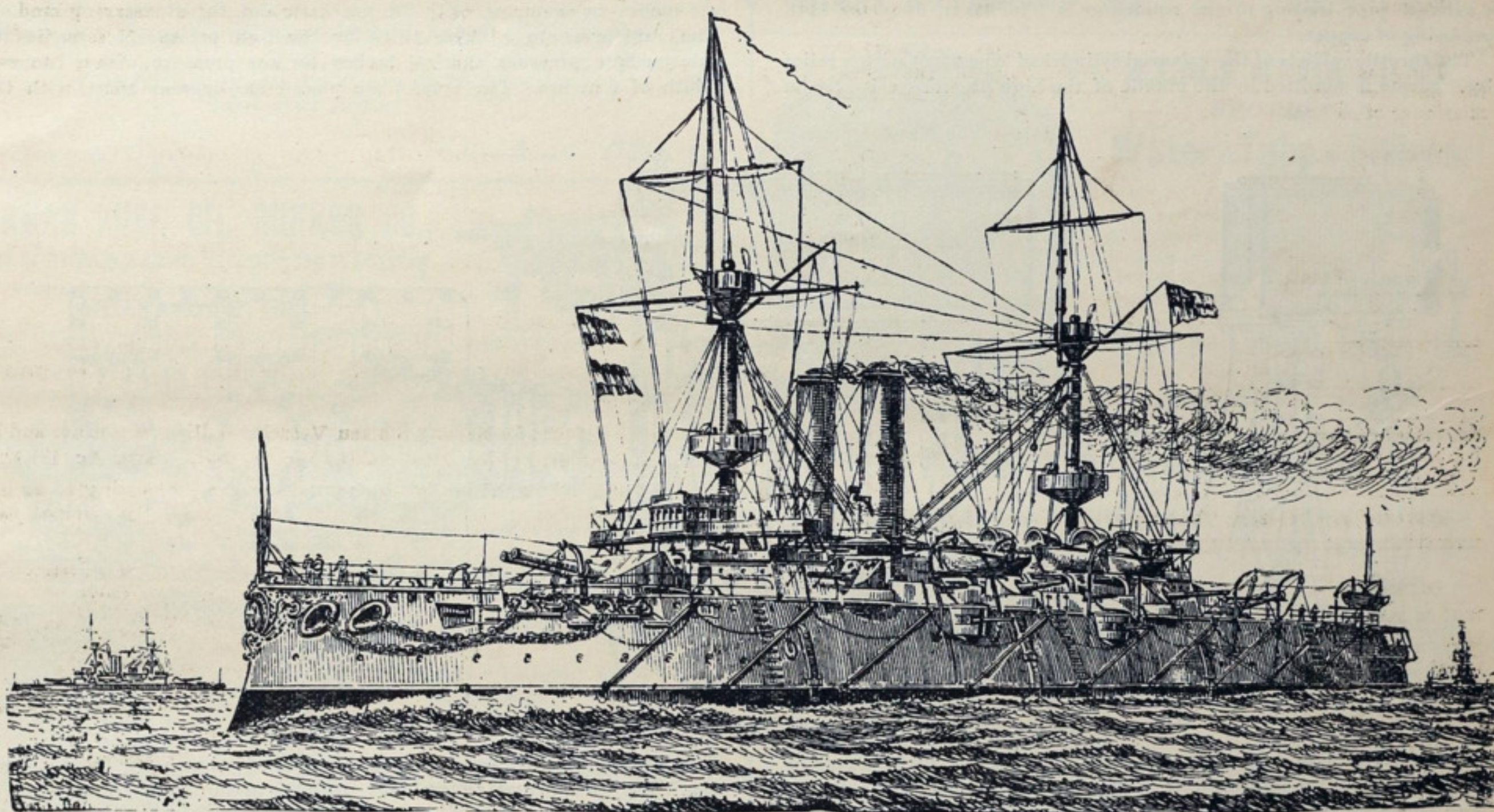
M. E. B. A. No. 43 of Port Huron, Mich.: Past president, Geo. H. Bowen; senior past president, J. H. Fitzgerald; president, Geo. A. Miller; first vice-president, W. P. Boynton; second vice-president, E. M. Murdock; recording secretary, Neil Miner; financial secretary, George Ingham; corresponding secretary, Jas. A. Southgate; treasurer, Arthur Armson; chaplain, Peter Finney; conductor, Harvey Depuy; door-keeper, Ed. Moore; delegate to national convention, F. P. Fitzgerald; trustees, J. H. Fitzgerald, Geo. H. Bowen and Peter Mullen.

### Prospects of a Passenger Line War.

Mr. F. P. Gordon, assistant general manager of the Northern Steamship Company, announced very positively when the North Land was launched in Cleveland a few days ago, that both of the big passenger boats of the Northern line will run to Mackinaw next season. This move on the part of the Northern line will necessitate, somewhat, a departure from the policy of fast runs between Buffalo and Duluth with the North West and North Land, and will partly bring these boats into competition on local business. It will probably result in the Detroit and Cleveland Steam Navigation Company carrying out its threats of extending Lake Huron service to Sault Ste. Marie, and it would seem that the Lake Michigan and Lake Superior company, operating the Manitou, would be prompted, on account of the change, to have the Manitou make three trips a week to Mackinaw and abandon the Sault run. Altogether, it would seem that the intention of the Northern line management, if carried out, will result in a general disturbance of passenger business that may bring about some very low rates.

### Around the Lakes.

Contractors are now at work rebuilding both of the ore docks at Ashland. Work on the Lake Shore dock No. 1 was begun this week. The



H. M. S. MAGNIFICENT—FIRST OF SEVEN BATTLESHIPS TO BE THE FINEST IN THE WORLD.  
From the Engineer, London.

M. E. B. A. No. 48 of Sandusky, O.: President, John Hegemier; vice-president, Geo. Zanger; treasurer, John Magunssen; recording secretary, Christ Howard; corresponding secretary, John Ewing; financial secretary, Conrad Bechtel; conductor, Geo. Moore; chaplain, Fred. Bremer; door-keeper, Nelson Lockhart; outer door-keeper, P. Ragen; representative to national convention, John Hegemier.

M. E. B. A. No. 67 of Saugatuck, Mich.: President, Wm. S. Bradley; vice-president, John Brown; past president, John Parks; recording secretary, Wayne Coats; corresponding secretary, Geo. Harvey; financial secretary, Henry Randal; treasurer, William Wilson; chaplain, Samuel Johns; conductor, J. K. Dole; door-keeper, Albert Sherman.

M. E. B. A. No. 3 of Detroit, Mich.: President, A. L. Jones; vice-president, T. J. Kelley; recording secretary, Ed. R. Dungan; corresponding secretary, George Gourly; financial secretary, Frank Kenyon; treasurer, Ed. R. Blanchard; conductor, Charles A. Fletcher; door-keeper, John Coleman; chaplain, J. K. Finehart; representatives to national convention, J. M. Cronenwett and Ed. R. Blanchard.

M. E. B. A. No. 55 of Cheboygan, Mich.: Past president, J. M. Brown; president, A. J. McDougall; vice-president, J. Cosgrove; treasurer and corresponding secretary, Chas. Adams; financial secretary, J. McLaughlin; chaplain, A. Stalker; conductor, J. Place; grievance committee, J. W. Brown, J. Lighthall and J. Place; delegate to national convention, J. W. Brown.

rebuilt dock will be a foot higher than the new dock at Duluth and the pockets will hold eight tons each.

Secretary Keep of the Lake Carriers' Association is in Washington looking after legislative matters.

The annual meeting of supervising inspectors of steam vessels, which extends over several days, is now being held in Washington.

The steamer Germania and barges H. C. Sprague, Wyandotte and William Case will be sold by the United States marshal at Toledo on the 19th inst.

Capt. J. B. McManus, who sailed the steamer Geo. Spencer for three years past, died at his home in Cleveland a few days ago. He was a member of the Shipmasters' Association and the funeral was attended by the Cleveland lodge.

Formal action for the enlargement of one of the dry docks of the Ship Owners' company of Cleveland was taken a few days ago. The enlarged dock will greatly exceed in size the dimensions of any boat now built or contemplated on the lakes.

Not satisfied with putting 246,603 bushels of oats aboard the big steel steamer S. S. Curry, Chicago elevator people are to give her an additional jag of a few thousand bushels before she is finally removed this week from the elevator to her winter quarters. This cargo is away in advance of any cargo of oats ever loaded on the lakes. Up to this time the Onoko held the record with 187,657 bushels.



### Yacht Engines Built by F. W. Wheeler & Co.

At F. W. Wheeler & Co's ship yard, West Bay City, Mich., the steam yacht Wapiti, owned by Mr. Isaac Bearer of Saginaw is being rebuilt. She will have Babcock & Wilcox water tube boilers, constructed for 450 horse power, and with triple expansion engines she is expected to maintain an average speed of 17 statute miles per hour.

The engines of the Wapiti were designed by S. Anderson, constructing engineer with F. W. Wheeler & Co., and were built by that firm. They are the inverted, triple expansion type, with cylinders 9 inches, 14 inches and 23 inches in diameter and a stroke of 14 inches, driving a Trout propeller 4 feet 6 inches in diameter and 6 feet mean pitch. The cylinders are placed in the sequence of high pressure, intermediate pressure, and low pressure. A very small space fore-and-aft being available for engine room, it was necessary to design an engine as short as possible, and for this reason the valve chests were placed athwartships and the low pressure and intermediate cylinders were cast together in one piece, while the high pressure and intermediate cylinder receivers were bolted together. All steam ports and passages are calculated for a piston speed of 900 feet per minute. The ports in the high pressure cylinders are  $1\frac{1}{2}$  inches deep and  $6\frac{1}{2}$  inches wide, in the intermediate pressure cylinder  $1\frac{1}{8}$  inches deep and 11 inches wide, and the low pressure cylinder ports are  $2\frac{1}{2}$  inches deep and 20 inches wide. The main steam pipe is  $3\frac{1}{2}$  inches in diameter, and the exhaust pipe leading to the condenser is 8 inches in diameter, both pipes being of copper.

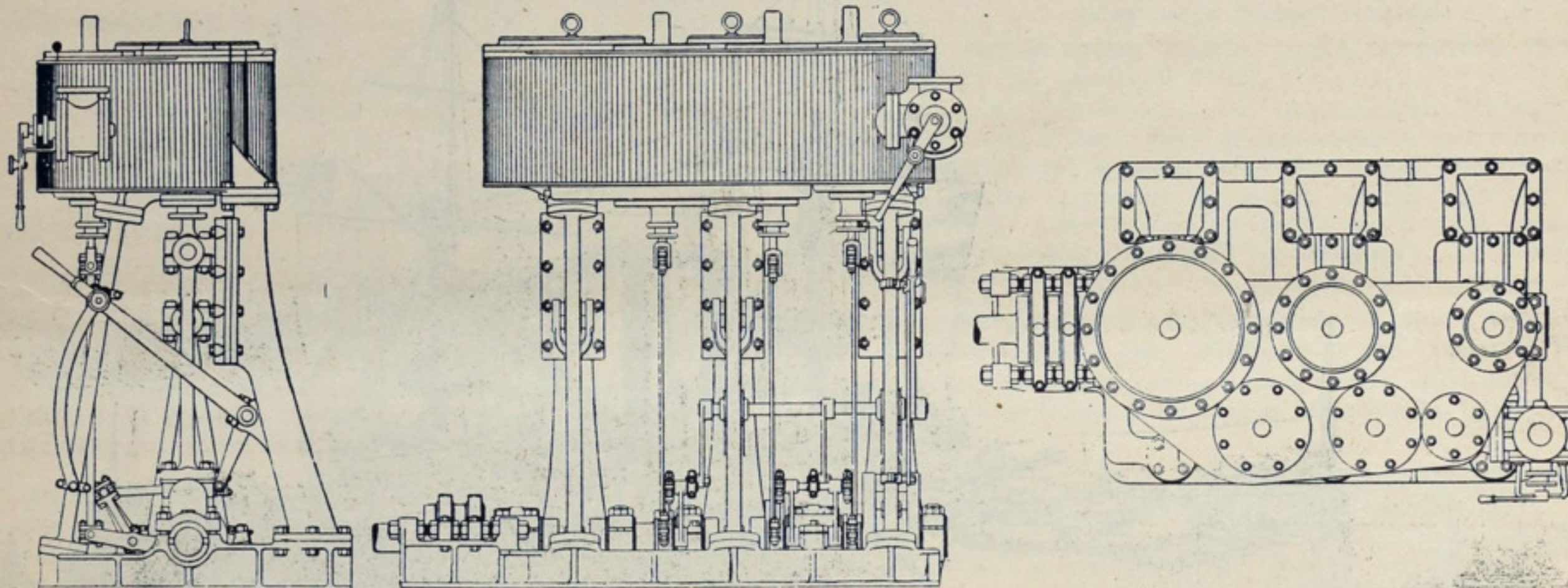
The throttle valve is of the balanced cylindrical type fitted with a relief valve. Steam is admitted in the middle of the high pressure valve to the

of wrought iron lined with babbitt metal. All pistons are of cast iron of the same weight 3 inches deep and fitted with self-setting spring rings; they are securely fastened to piston rods by means of quick taper and nuts. The piston rods are made of the very best mild steel  $1\frac{1}{8}$  inches in diameter for the high pressure and intermediate pressure, and 2 inches in diameter for the low pressure.

The crossheads and piston rods are in one piece, free from welds, and the slippers are provided with brass gibs  $9\frac{1}{2}$  inches deep and  $6\frac{1}{2}$  inches wide, the gudgeons being  $2\frac{1}{2}$  inches in diameter by 4 inches in length. The connecting rods are also of steel 39 inches between centres, with the upper end forked. The diameter at the upper end is  $1\frac{1}{8}$  inches and  $2\frac{1}{4}$  inches at the lower. The bolts in the crossheads are  $1\frac{1}{8}$  inches in diameter, and the connecting rod bolts are  $1\frac{1}{4}$  inches in diameter, all being of steel. The crank pin brasses and all main journals are lined with Magnolia anti-friction metal.

The cylinders and valve chests are covered with magnesia and lagged with highly polished mahogany. They are supported by three wrought iron columns in front, leaving the entire front of the engine open for examination of the journals, and by three cast iron columns in the rear, the latter forming the guides, which are the slipper slide variety.

The bed plate is of the girder type, with the thrust bearing cast on, and has five main journals. The crank shaft is forged solid of mild steel  $4\frac{1}{2}$  inches in diameter, with the eccentric and thrust collars forged on. The crank arms are 2 inches thick for the high pressure,  $2\frac{1}{4}$  inches for intermediate pressure, and  $2\frac{1}{2}$  inches for low pressure, with a common width of 6 inches. The cranks are placed 120 degrees apart, with the



TRIPLE-EXPANSION YACHT ENGINES BUILT BY F. W. WHEELER & CO., WEST BAY CITY, MICH.

high pressure cylinder, and exhausts at both ends into a receiver connected with the middle of the intermediate pressure valve, from which it exhausts at both ends into the low pressure valve in the usual way, the exhaust this time being carried by the inside of the valve to the condenser. All the cylinders are fitted with piston valves, and the ports in all valve chests are  $1\frac{3}{4}$  inches deep. The high pressure valve is  $5\frac{1}{2}$  inches in diameter of the "Heyde" patent type, with a lap of  $1\frac{3}{8}$  inches at top and  $\frac{7}{8}$  inches on bottom. The intermediate valve is also of the "Heyde" type, and is 9 inches diameter with the same laps as the high pressure. The ports in the valve chamber extend only half around, and the valve is kept absolutely steam tight by the half circular spring ring on the opposite side of the ports pressing the valve against the liner, the other half of the ring being pinned to the valve making a solid plug valve. This valve combines the advantages of a steam tight flat D valve and a perfectly balanced piston valve into one, and is patented by Mr. Edward Heyde, M. E., with Wickes Brothers, of Saginaw, Mich. The great trouble that has heretofore been experienced with this type of valve lay in the fact that the rings were apt to catch in the ports if they were allowed to travel over them, and that the wear resulted in bad leakages of steam past the packing. With the present arrangement the bottom face of the valve is kept solid, and the rings merely stand out on the back to serve as balancing packing; if they were removed the valve would work on as usual with the exception that it would no longer be balanced. The low pressure valve is 10 inches in diameter, fitted with a self-setting spring ring and  $\frac{7}{8}$  inch lap on both ends. All valves are worked by the Marshall radial valve gear, all connections being made adjustable. Steam is cut off in all cylinders at 0.75 stroke when in full gear. All valve stems are of steel, the high pressure and intermediate pressure being  $1\frac{1}{8}$  inches in diameter, and the low pressure  $1\frac{1}{4}$  inches in diameter.

The eccentrics are forged solid on the crank shaft, and the straps are

intermediate leading the high pressure, and the low pressure crank following. The two thrust collars are  $10\frac{1}{2}$  inches in diameter, and  $1\frac{3}{4}$  in thickness. The horseshoes are faced with babbitt metal, and are adjustable by means of steel bolts and brass nuts. The condenser is of the independent, single acting type, with a steam cylinder 7 inches in diameter, water and air cylinder 12 inches, and stroke of 12 inches, weighing only 2,000 pounds, and of an entirely new pattern, made by Dean Brothers of Indianapolis, Ind.

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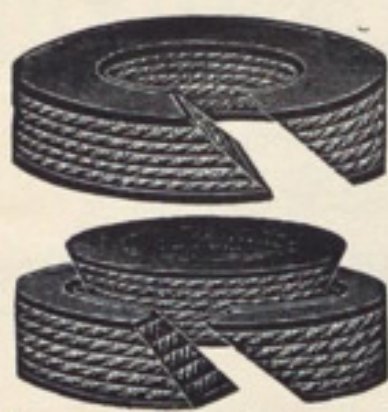
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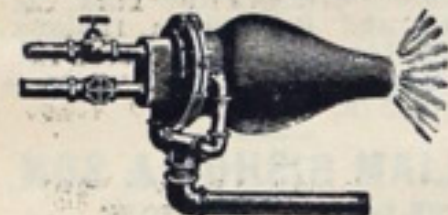
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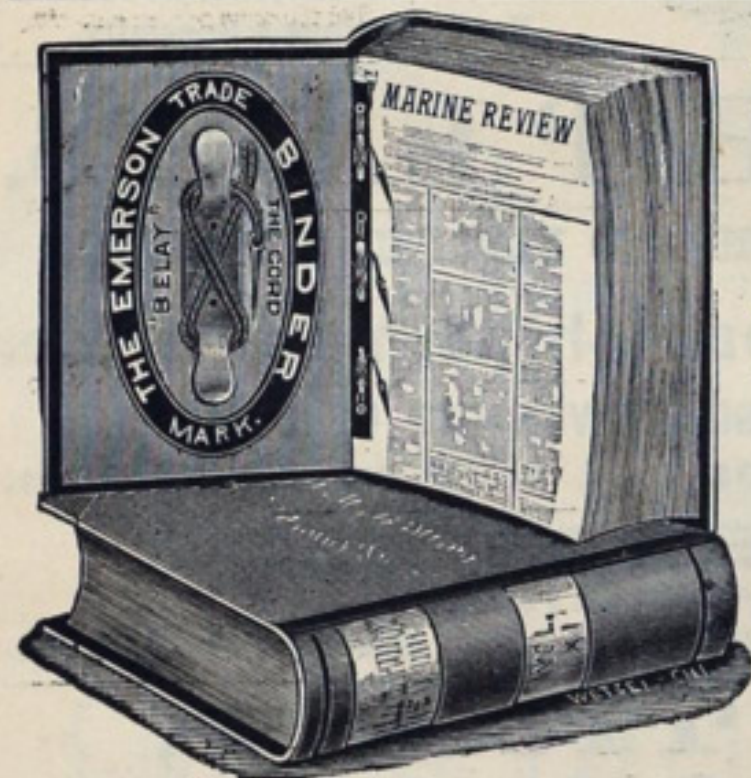
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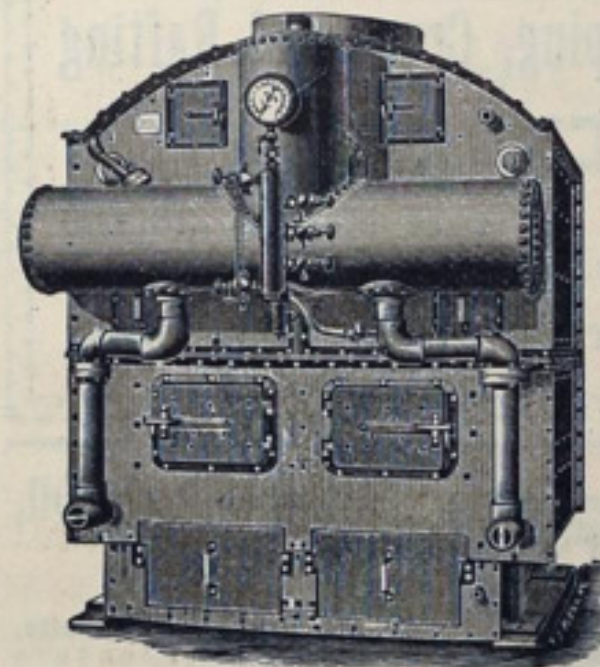
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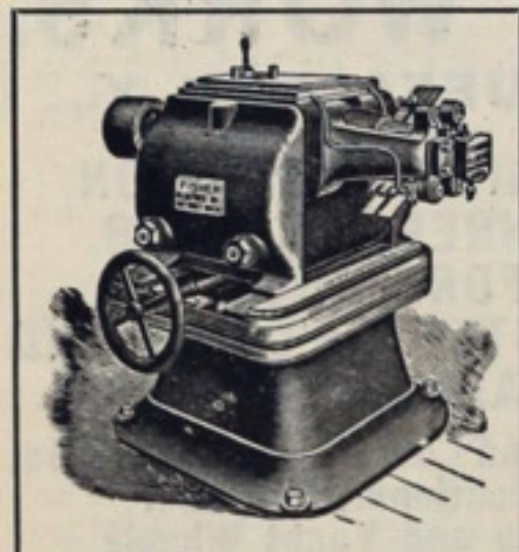
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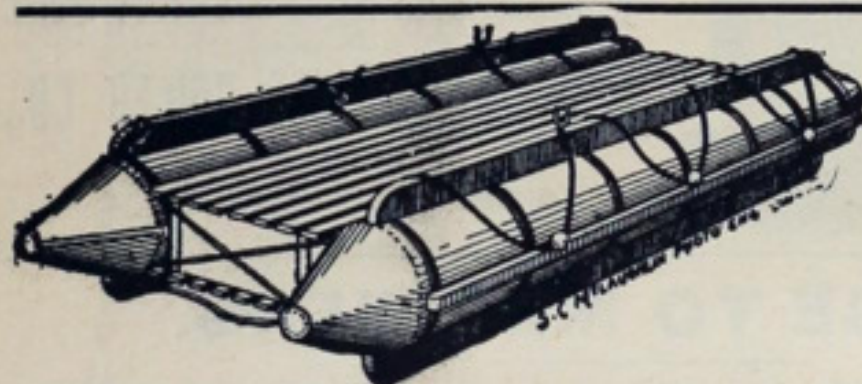
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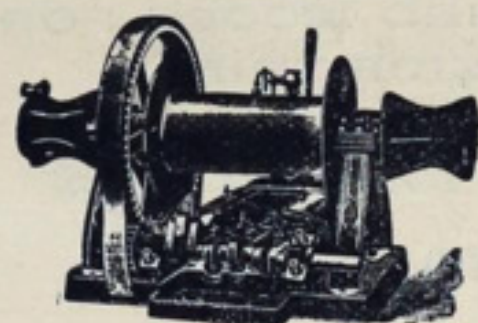
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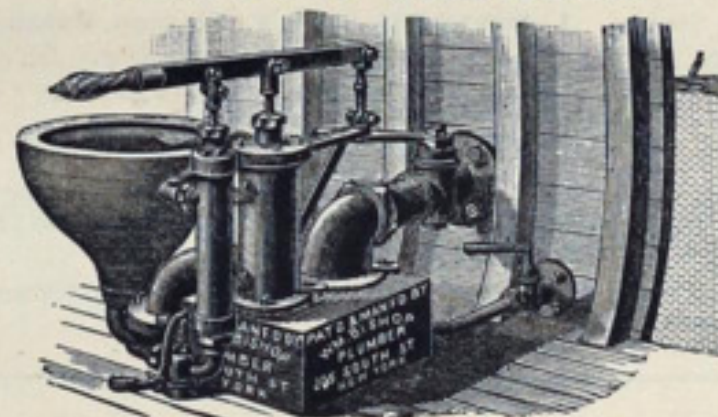
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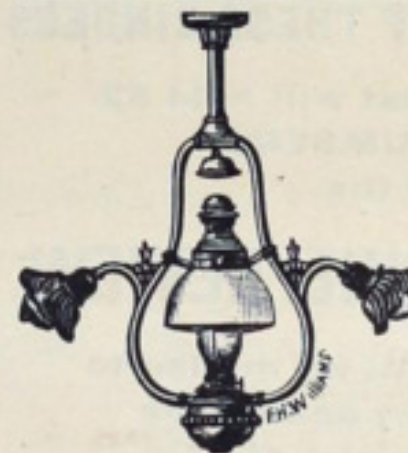
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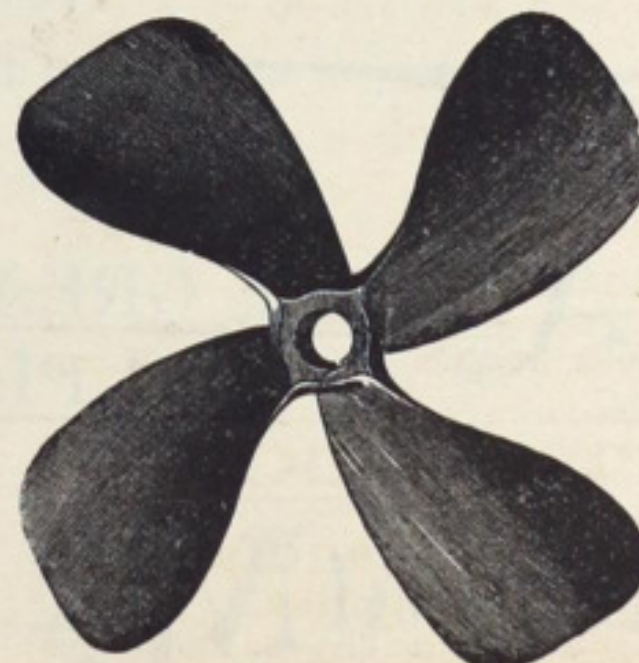
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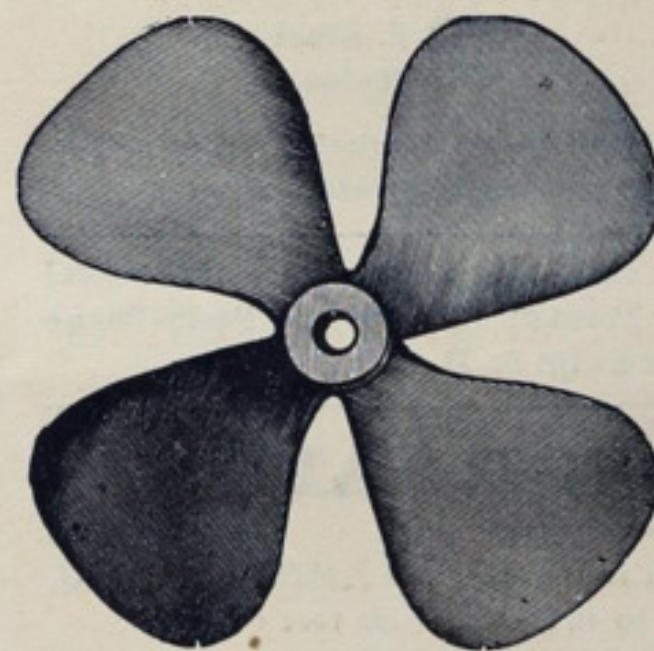
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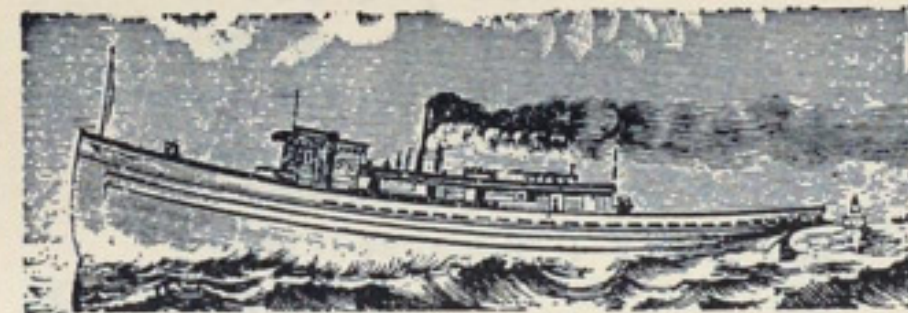
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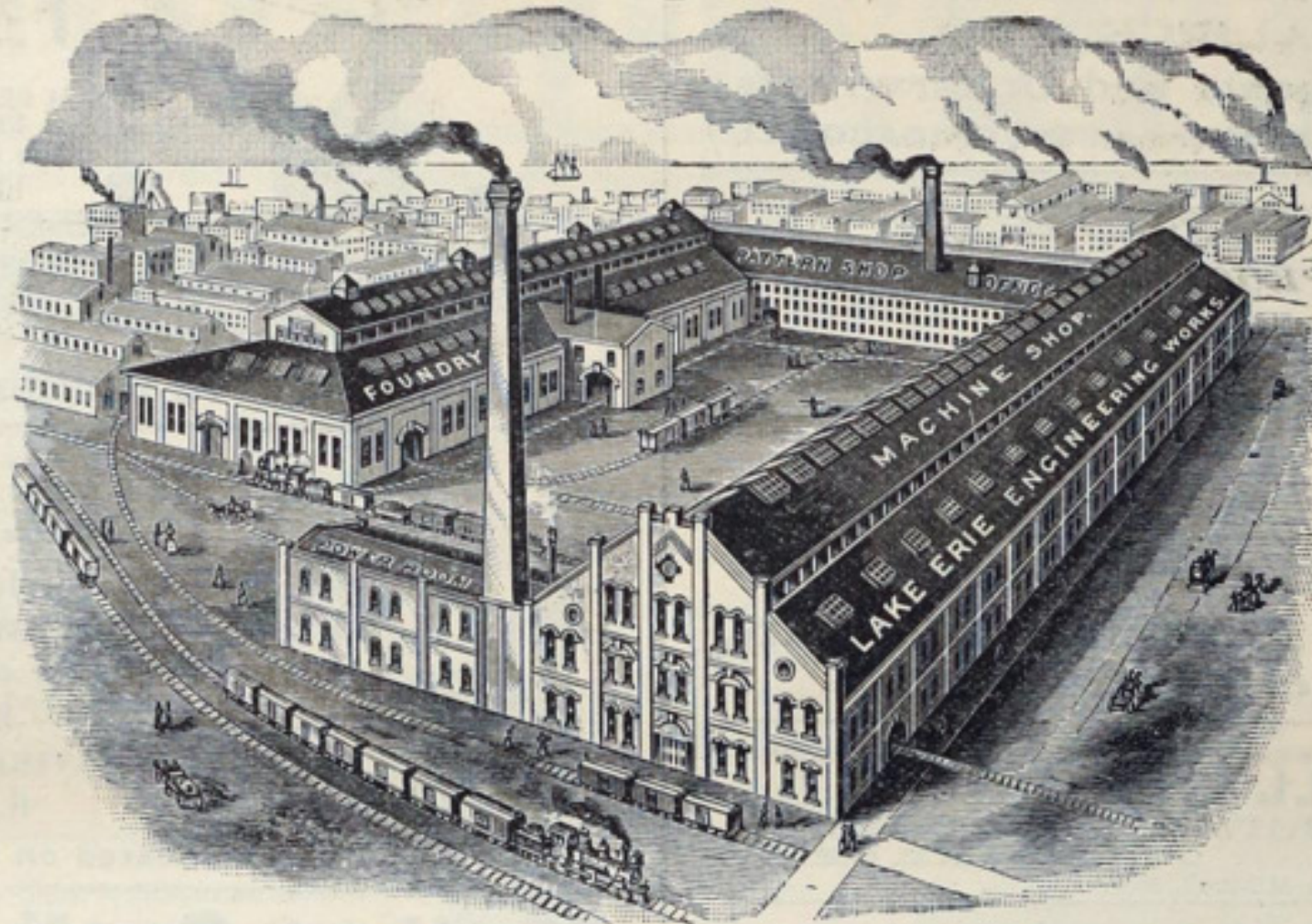


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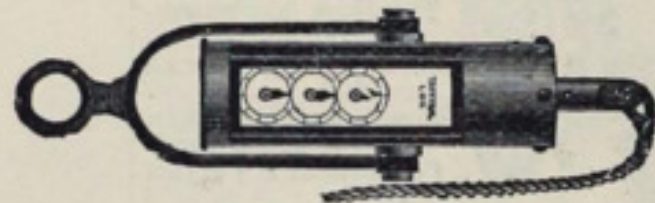
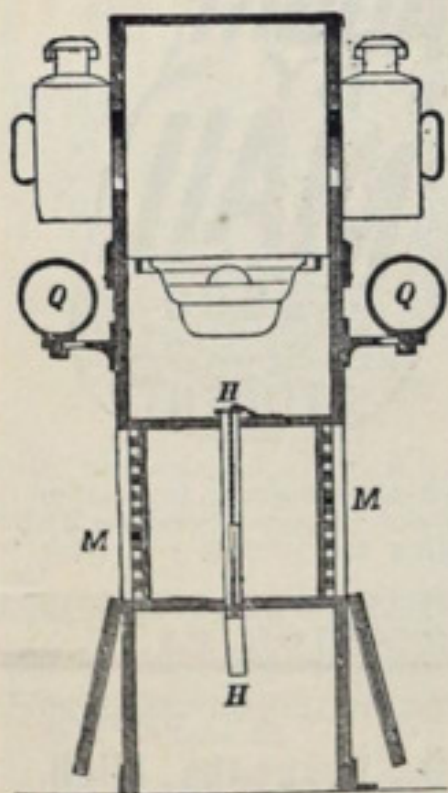
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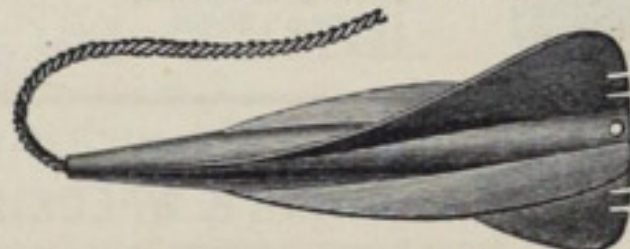
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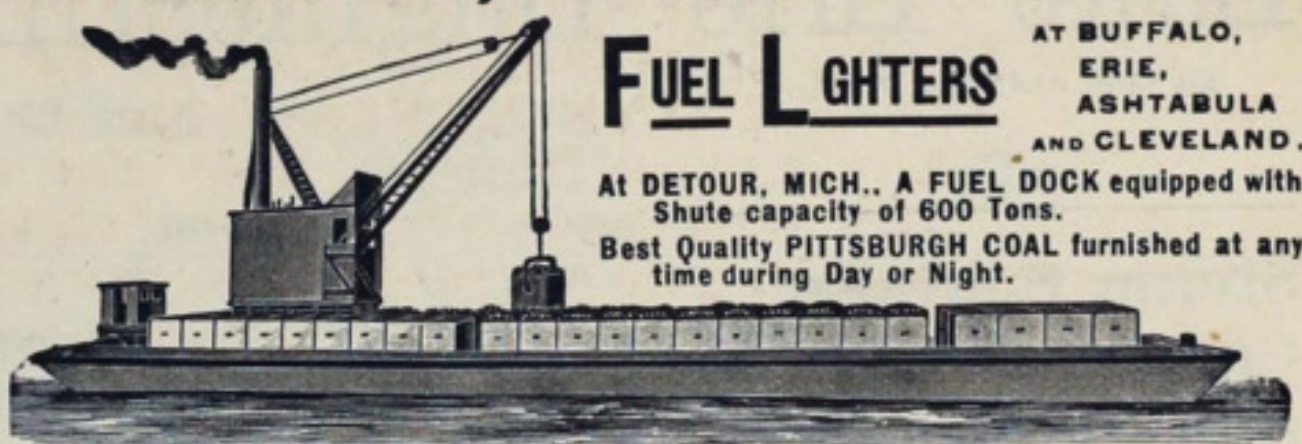
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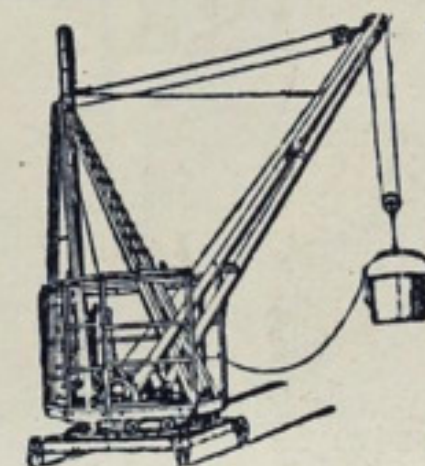


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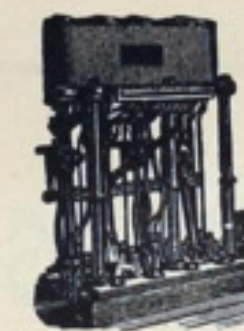
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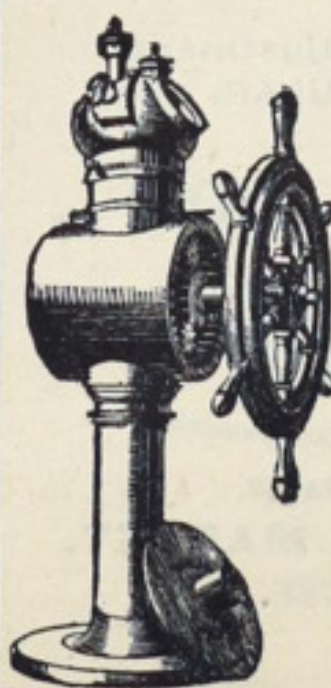
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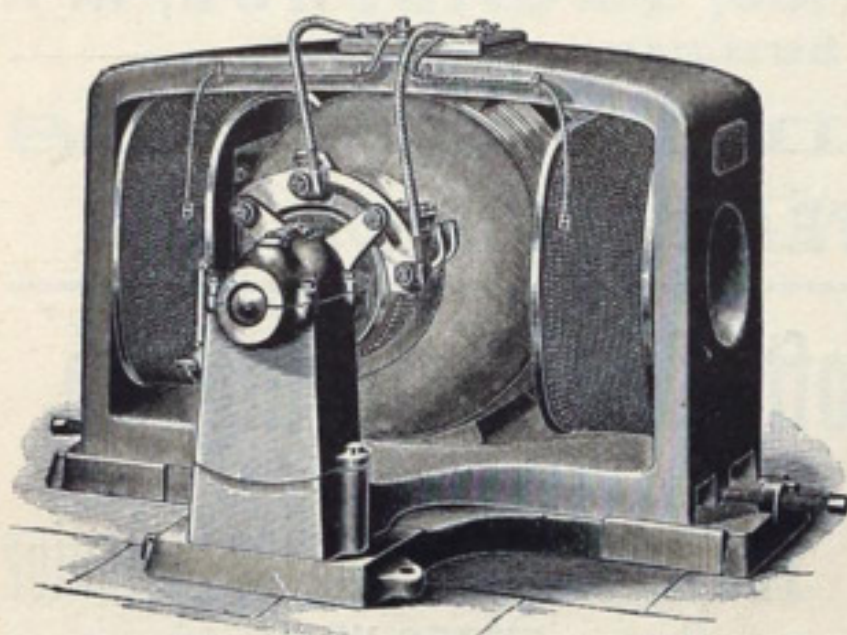
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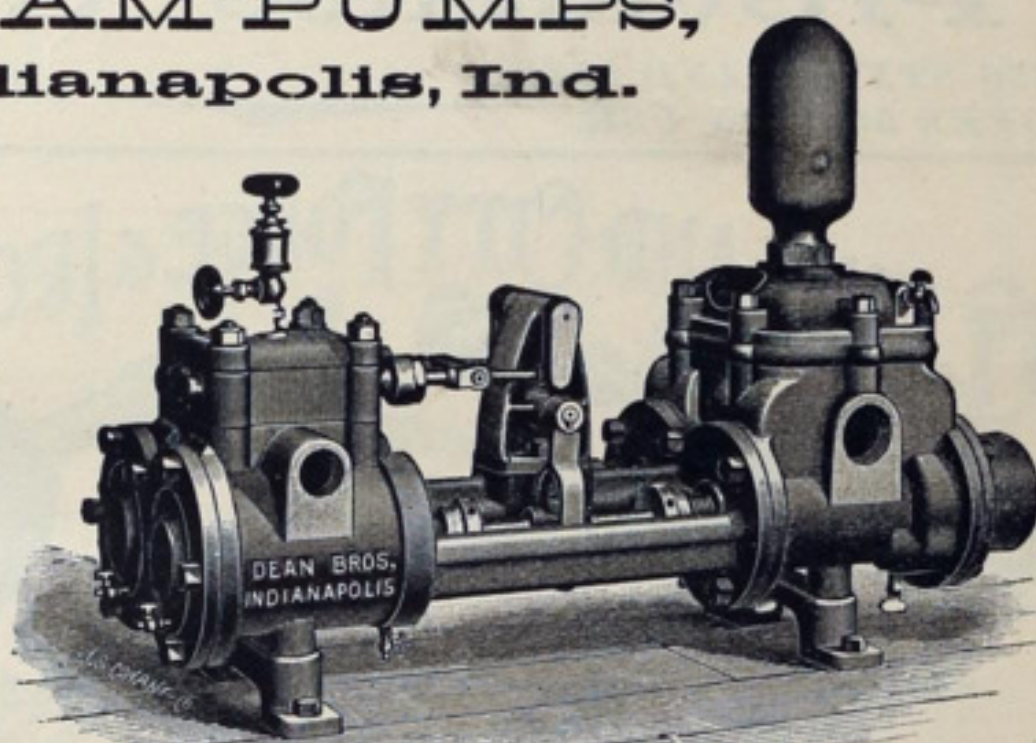
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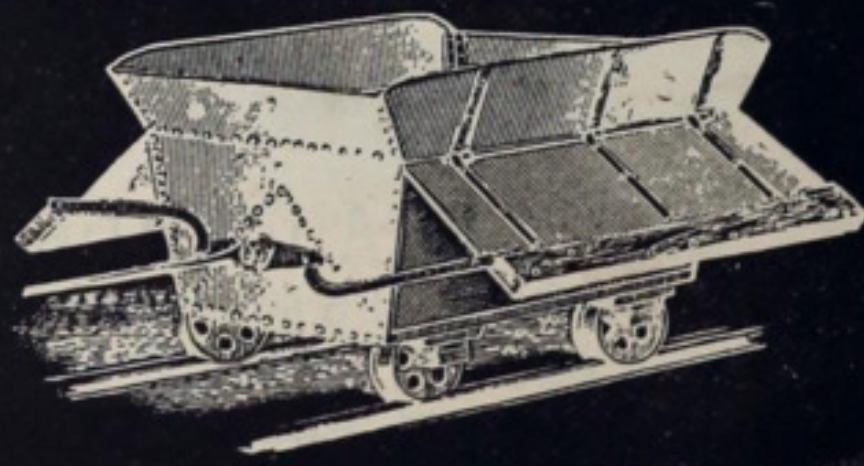
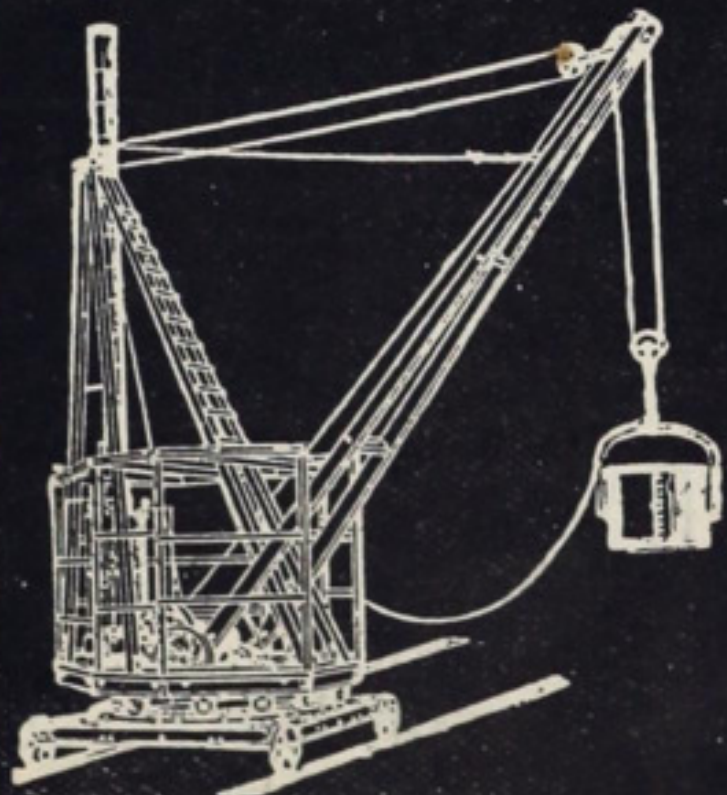
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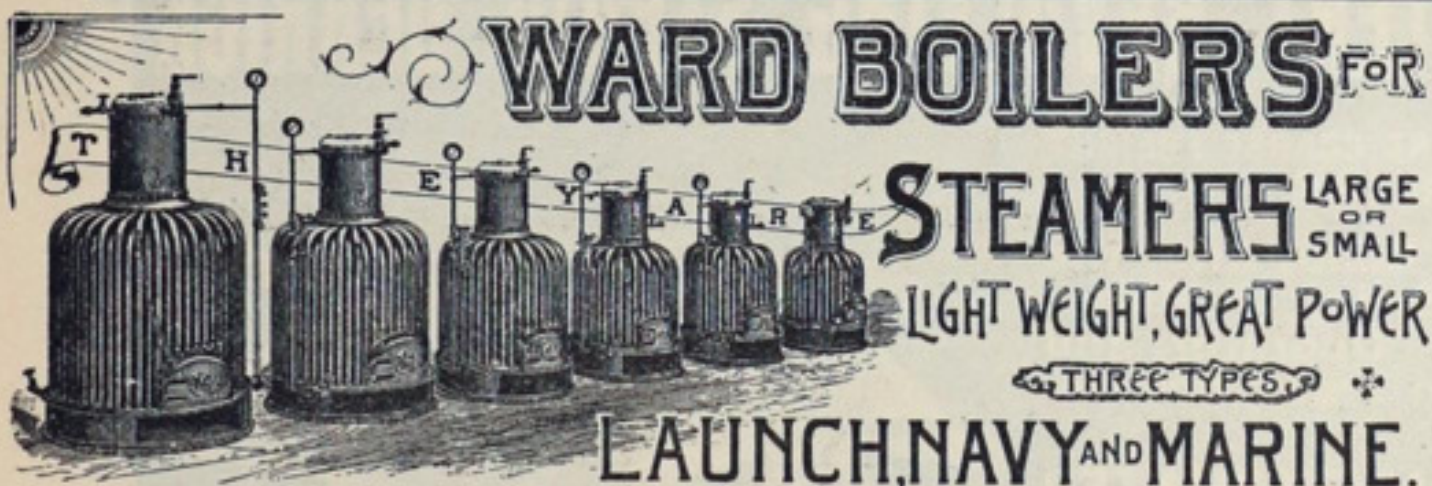
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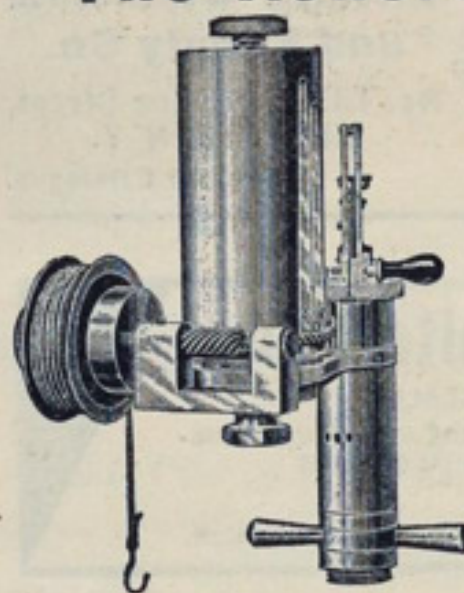
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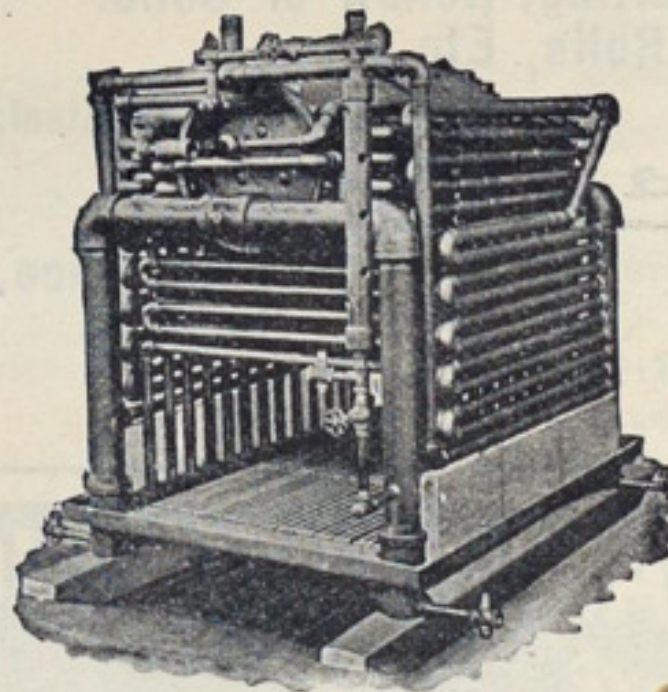
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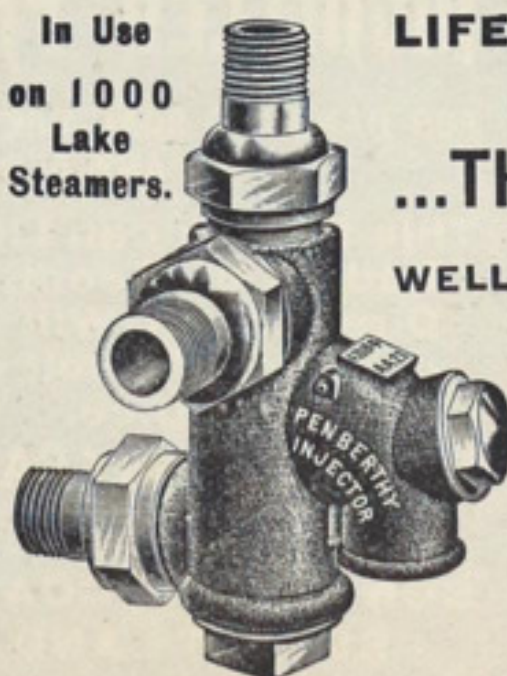


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